The Plough, the Loom, and the Anvil.

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SOUTHERN AND NORTHERN INDUSTRY.

SOUTH CAROLINA AND RHODE ISLAND.

WE have repeatedly endeavored to convince our Southern friends, as well as others, that their true policy was to establish and encourage, within their own territory, various manufactures, not only making themselves independent of others, but also introducing a source of very great profit, far exceeding that of any single agricultural product.

A writer in the September number of *De Bow's Review*, seems to hold similar views with us on this great subject, and in an article on giving "a Statistical Review of the State of Illinois," asserted that "the manufactures of Rhode-Island are more valuable than the manufactures and cotton of South Carolina. Thus:

Rhode Island manufactures.....	$8,640,626.
South Carolina "	2,248,915.
" " raises cotton to value of.....	4,628,270.

"The population of Rhode Island is but 147,545, while that of South Carolina is 668,507. The area of Rhode Island is but 1,306 miles, while that of South Carolina is 29,000.

On this statement a South Carolinian (as Mr. De Bow informs us in a prefatory note) in his October number, remarks as follows:

"Now, sir, we must do you the justice to believe that you were busy, or traveling, or indisposed, or in some other way prevented from a fair perusal of your proof-sheets. We have ourselves ere now, if we remember rightly, run the gauntlet of your statistical corrections, and acknowledged ourselves fairly chastised and honestly reproved. Most undoubtedly, if you read the above statement at all, it must have been at past the witching hour of night, when editors, like common folk, begin to wink their eyes and long for their pillows. The error of it (to use the harsher term) is too flagrant to escape any wide-awake eye. I say nothing of the spirit of the remark, which shows certainly anything but kindness from the champion of the big Illinois giant, who thus singles out the weakling, South Carolina, as the object of unkind taunt, for her immense inferiority to her little Yankee sister, Rhode Island, and which points his moral by holding up said South Carolina as a warning to all lazy backsliders, in contrast to her industrious little rival, who shows us, 'beyond a cavil or a doubt, the true grounds upon which a State must rely for its greatness.'

"We pass over the invidiousness of the conclusion to show the insidious falsehood of the statement, or the absolute ignorance of every principle of political economy in the maker of it. '*The manufactures of Rhode Island are more valuable than the manufactures and cotton of South Carolina.*' Is the writer ignorant of the difference between a gross and a net revenue? Does the merchant of Chicago who sells $50,000 worth of goods in the year, for which he has paid $48,000, do a more profitable business than the neighboring farmer who sells the proceeds of his harvests for $6,000, after paying all expenses with $2,000? In our humble opinion, the farmer makes double the gains, and has double the income of the merchant, while, according to the reviewer's system of calculation, the merchant has made more than eight times the profit of the farmer. It is scarcely necessary, we presume, to quote Say and Ricardo to prove that the farmer is the richer man; and yet, in our supposed case, we have the parallel fact to the one upon which the reviewer bases the superiority of Rhode Island. South Carolina, an agricultural State, incurs, like the farmer, but small expense in the raising of her produce. Of the staple which she sells she buys nothing; and after the expense of supporting her laborers, which is small, (their principal provisions being of home growth,) all is clear gain. Even what she manufactures brings her small expense, for she but works up her own produce, which costs her nothing, even as the farmer's wife might spin and knit him socks from his own wool. Her $2,248,915 of manufactures, and her $4,628,270 of cotton, give her $6,877,185 of revenue, nearly free of expense, to say nothing of her rice and other smaller products which are in this calculation entirely ignored. On the other hand, Rhode Island, like the Chicago merchant, has begun by a large outlay. She has not only to support her laborers at an infinitely larger expense than South Carolina, but also to meet immense expense of machinery from which South Carolina is exempt; and again to pay for the material, the cotton and the wool, which she resells in the shape of manufactures, even as the merchant paid for his goods. Does the author of Illinois statistics call all this nothing? He seems to have imagined the cotton and wool a windfall, a dew from heaven, a costless blessing. And the machinery, does it grow on the barren rocks, like oysters perhaps, or New-England clams, to be taken for the gathering?"

With the particular controversy between these two writers in *De Bow's Review*, we, of course, have nothing to do. We have not the pleasure of knowing even who they are. Both show themselves able to manage their own cause, so far as it is defensible, and perhaps neither would thank us for appearing to interfere with them. We do not intend to interfere. But so far as this issue bears upon the great industrial interests of our country, we attach to it a corresponding importance, and as it is thrown directly in our path, we are not inclined to pass it by in silence. We therefore take the occasion that is here presented to urge upon our Southern friends our conviction that manufactures are an essential part of the productive industry of every prosperous community. On this point this particular question has a direct bearing. In enforcing this general topic, we see no objection to a careful examination of this particular and limited inquiry. What is true of these two States, is essentially true of any two States, and of all States, occupying similar positions in respect to the productive industry of the country.

Hence we undertake to prove that the Illinois correspondent of September, if not literally, is essentially correct, that is, that the manufactures of the little State of Rhode Island are of greater value than the manufactures and

cotton crop of South Carolina. If it be so, it is worse than folly to attempt to persuade the people that it is not so.

Our friend from South Carolina does not give us any statistics, but confesses the want of them. "We have, unfortunately," he says, "no means at hand to assist us in computing what would be in truth the net income of Rhode Island, according to the reviewer's own statement of her gross income." With the aid of our learned friend De Bow, we will endeavor to supply this deficiency. It is too important a matter to be suffered to rest on any mere assertion, but whatever the truth may be, our refusal to weigh testimony and to compare facts, and to draw logical conclusions, will not prevent the development of the truth in the years to come, nor defend us nor the South from its legitimate and inevitable consequences. Look at the agricultural condition of some of the older States, who practically despise the mechanic arts and manufactures, and see the consequences of the policy against which we protest. In one of our former volumes, (2d,) the honored and learned founder and editor of this journal, Col. Skinner, than whom no warmer friend of the South ever breathed, uses the following language: "There may be seen along the tide water courses, magnificent ante-revolutionary mansions converted into stables and granaries, out-houses in ruins, churches and fences in a state of decay, with vestiges of old orchards, and gardens scarcely visible, roads almost impassable, etc., etc."

Again, the *Richmond Republican*, in 1851, we believe, states that a little more than eighty years ago the imports of Virginia amounted to $4,085,472; in 1849, to $241,935.

Again, the Alabama *Planter* said years ago, "No one can doubt that there is a manifest falling off on the product per acre of cotton, and this reduction tells heavily on the *cost* of production per pound."

But we have no occasion to multiply statements of this kind. They give us no pleasure. But we are unwilling that any false policy should attempt, with even temporary or partial success, to deceive those so deeply interested in this fundamental truth. It is false courtesy that would counsel silence under such circumstances. If success does not attend the policy hitherto prevalent in such districts of country, it is important to look at the details and ascertain what is the exact point on which success or failure depends. The idea that American industry, judiciously managed, will not pay, is too absurd to occupy any one's time or attention for a moment.

Let us, therefore, come to the question before us. What is the testimony in relation to it?

Our first authority is an able and valued correspondent of this journal for many years, and at the present time a grower of cotton, and abundantly able by experience and observation to judge of the profits actually realized by the planter. He speaks for himself in a subsequent page (270) of this number.

Our second witness is the Southern press. A year or two since, some ably written papers appeared, either original or copied, we believe, in the *Soil of the South*, one of the ablest of our exchanges, in which it was estimated that the cotton crop cost the producer eight cents a pound, and which seemed to consider the crop as scarcely remunerative.

Now what is and has been the market value of cotton to the producer? Our witness on this point is the learned and accomplished editor, Mr. De Bow, than whom, on such points, higher authority does not exist.

The prices of upland cotton of different qualities, in 1851, ranged from $7\frac{1}{2}$ to $10\frac{1}{4}$ cents, in 1852 from 7 to $9\frac{1}{4}$. In the March number of his *Re-*

view, 1853, p. 181, we found it recorded as follows: "From 1840 to 1844, when the average [price of cotton] was only eight cents," etc. And again, "from 1845 to 1849, the average price was only 7½ cents." In a table on page 284, the prices are set down as follows: for 1850 and 1851, 11.8 cents; 1852 at 9 cents; and from 1840 to 1852, at 8.5 cents. And again, on the same page, it is stated that "the price has been 8½ cents *at the seaports* for the last thirteen years."

Now assuming the cotton crop of South Carolina at [1,000,000] pounds, we have very tolerable data for estimating the net profit of the growth. It then becomes necessary to inquire into the net value of the annual product of the arts not agricultural in Rhode Island.

On this point we bring forward the same witness, our learned friend of the census of 1850. Our friend De Bow appears in his introductory note to endorse the doctrine against which we contend, taking back a previous recommendation of the September article which is censured by his October correspondent, but his statistical tables will not be so accommodating. Turn to page 179 of his Compendium and there read that the profits of the "product of manufacturers, mining and mechanic arts in Rhode Island are 30.18 per cent." Unless Rhode Island falls below the average of New-England, it is true that nearly one-third of all the values of these products is not gain, for the average net profit of these products in the New-England States, is set down at 31.19 per cent.

Now we suppose it is admitted by general consent that the cotton and woolen manufactures of Rhode Island are more profitably conducted than in almost any part of New-England. The mills are generally, or at least very frequently, superintended by their owners, while many of the operatives are comparatively permanent residents of the village. Portions of them, of course, are floating, engaging themselves here or there, as best they may.

Is there any doubt in this testimony, whether these manufactures of Rhode Island pay better than the cotton culture of South Carolina? But this is not the precise point in dispute. Let us therefore look a little further.

The annual product of these interests in Rhode Island Mr. De Bow sets down as little more than $22,000,000. 30 per cent. of this is $6,600,000. The *gross* amount of the South Carolina cotton crop is "$4,628,270." But though this covers all the ground we have been contending for, as to the essential value of manufactures, so far as the point described as in dispute is concerned, we must go a little farther.

The distinction between the products of "manufactures" and of "the mechanic arts" is more in name than in substance, but is often very convenient, though the dividing line may not easily be drawn. Let us then take the "manufactures" proper, which are estimated at $8,640,626. 30 per cent. of this is $2,588,481. Now, what compared with this is the net profit on four and a half millions of dollars' worth of cotton that is "not remunerative?" On this state of the testimony, should we present this subject to a judicious man about to invest his property, which would he choose, the South Carolina or the Rhode Island investment, *allowing the same capital to be required?*

This brings us to our last point—viz., the amount of capital required in these two investments. The amount of capital consumed in these "profits" in South Carolina is estimated in the census as follows:

Real estate - - - - - -	$105,737,492
Personal estate - - - - -	178,130,217
Total - - - - - - -	$283,867,709

while the "true valuation" is $288,257,694. A large proportion of this is devoted to the raising of cotton.

The same authority sets down the capital invested in manufactures in Rhode Island as follows:

In cotton	$6,675,000
In woolen	1,013,000
In iron	428,800
	209,400
Distilleries, etc.,	17,000
	$8,343,200

Again, the entire capital invested in "Manufactures, *Mining*, and the Mechanic Arts," is stated to be $12,923,176.

Whether there can be any disagreement in the jury on such evidence as this—whether that jury is composed of twelve men or twelve millions of men—would seem to be only another form of asking whether they were men of common sense, or whether they jumped at their conclusions under any momentary impulses which might be brought to act upon them.

The general correctness of these calculations is obvious from the fact that we find in page 178 of the Compendium that the manufacture of cotton in the United States pays all the expenses (estimated) with five per cent. interest on the capital employed, and then pays a profit of ten millions of dollars, the entire amount of cotton consumed being valued at less than 35 millions, giving nearly the same per cent. profit as before stated in regard to the manufactures of Rhode Island.

Such statements as we have here presented forcibly remind us that recent writers, who are so freely and, allow us to say, ridiculously advocating, with scarcely a show of argument, the doctrine of disunion, if they are really in earnest about it, begin altogether "at the wrong end." One of them is about to establish (on paper) a line of packets, to run between Charleston and Havre, but has forgotton to furnish, or to begin to furnish, anything for the said packets to carry. *Perhaps* he will confine them to cotton. Another has some different but equally flimsy fabric of which he is to build a great State. No. Such gentlemen would very soon find out that independence, in ANY form, will be and can be carried out with success only by establishing these various occupations among themselves; otherwise they would be as badly off as the new comer on the borders of a wilderness who squats on the land bought and paid for by his next neighbor, but who yet has to borrow, beg or buy of that same neighbor an axe, teakettles and irons, shovel and tongs, cups, saucers, gridiron, chairs, table, etc., etc., before he can have the means of properly preparing and enjoying his first cup of coffee, or his first pork-steak, and who must get the help of the neighbor himself to lay the first timber of a log-cabin to protect him from wolves and bears.

He who would advocate true independence at the very outset, should establish every useful form and variety of the mechanic and manufacturing arts; and thereby they would produce so happy a change in the financal and general condition of the States now exclusively agricultural, that all other questions would fade into comparative insignificance, or, if not, they would have all the means—physical, moral, and personal—that would be needed to pursue successfully any policy that might be deemed necessary for securing other important advantages.

A fatal error is involved in another remark of this writer, thrown off as if it were not to be questioned, viz., "Of the staple which she sells she buys

nothing, and after the expense of supporting her laborers, which is small, (their principal provisions being of home growth,) all is clear gain." A terrible mistake this, or a more terrible practical blunder in suffering it to be true.

The agriculturists of the South do not enrich their lands as they ought, and hence there is a gradual but inevitable "consumption" going on which will ere long bankrupt the richest plantations, and create a desolation, not only in present supplies but in the source of supplies, which will exceed that which the most excitable have ever anticipated from the folly and fanaticism of their neighbors at the North.

We do not believe there is any substitute in these later times, and in the higher forms of civilization, for the various sources of wealth to which we have here had reference. Prosperity in its fullest extent, without them, we believe to be impossible, and therefore it is that we entreat that attention to the subject which will lead those in interest to that course of conduct which the case demands.

Such policy as we here urge is important to all the States, whatever their climate or the productiveness of their soil. Nothing else can secure them a home market, and nothing else will even permit a concentrated population. On any other system we must be limited to a sparse population, imperfect facilities for the management of the traffic necessary in all communities, and a deprivation of many enjoyments which, in cities and large towns, are accessible to all classes.

THE LACKAWANNA COAL REGION.

THE lands in this section of country are becoming of great value. Its population is rapidly increasing. Scranton is a new village located on the banks of the Lackawanna river, in the Lackawanna Coal Bed; said to be next to the Schuylkill region, the most extensive Anthracite bed in the world, and even more valuable than the Schuylkill region, because the whole mountain contains either coal or iron. The yield of coal has already been in some instances 50,000 tons to the acre. Land has increased immensely in value in the last two years, since the prospect of a direct communication with New-York has become a certainty; a tract of 150 acres has recently been sold at five hundred dollars the acre, for which two hundred dollars the acre were paid *less than a year since.* The Scranton Iron Works Co., one of the most extensive concerns in the Union, are now engaged in making the iron for the new railroad, and the quality of it is said to be equal to the best of that made in Wales.

This village, which five years ago consisted only of a few scattered hamlets, now contains a population of more than 5000 inhabitants, and many new buildings are in course of erection. A small lot near the Wyoming House containing less than half an acre, sold last week for the location of a banking-house, for fifteen hundred dollars, the same having been purchased in November, last year, for *five hundred*—and the hotel, a large, substantial, three story brick building, erected three years since, and which stock-holders (it being put up by a company) supposed would be at least five years in paying expenses, not only paid a rent of $1200 last year, but divided besides, a

handsome profit to the stockholders, who now ask an advance of $20,000 on its cost, though they would two years since been glad to have sold it at a loss, but at that time the prospect of the direct New-York connection was very dim. Now everything is bright, and Scranton in 1860 will probably contain twenty thousand residents.

WHAT A POOR FARMER CANNOT AFFORD.

In an address at the Annual Fair in Erie county, Hon. Horace Greeley made sundry very sensible observations. We note two or three of his *specifications* on the subject taken for our caption, on which we would make a few suggestions. Among other things, said he,

"No poor man can afford to be a poor farmer." "No poor man can afford to cultivate his land in such a manner as will cause it to deteriorate in value." "No poor man can afford to produce weeds." "Farmers cannot afford to grow a crop on a soil that does not contain the natural elements that enter into its composition." "No poor farmer can afford to keep fruit trees that do not bear good fruit, nor to work with poor implements."

All this is well. It is true. It is perfectly undeniable. But it is only one side of the story. Some other kindred truths are equally obvious. That poor cripple at the corner "cannot afford" to waste his time in inaction. That poor scholar cannot well afford the time to walk a hundred miles to the place where he is to seek for employment. That poor sick woman, the farmer's wife, cannot afford to carry about that chronic disease which has been a burden to her for years.

This chapter is a long one, and it is equally true as the former. So the poor farmer cannot afford to be "a poor farmer." Well, can he afford to be poor in any way?

There certainly are two sides to this. "Poor farmers" and poor mechanics have a good deal to say for themselves. The latter would like a set of improved tools. The want of them prevents him from competing for a capital job, which is advertised, and hence he must let his richer neighbor, who is yet a poorer mechanic, secure the contract and pocket its profits. And this was ONLY because he is poor. If he could have procured the tools, he might have secured these profits to himself.

So the world goes. To him that hath is given more abundantly. Were this anything more than the mere accidentals and contingencies, attendant upon a higher which is the true BEING, we should be much puzzled with our theology.

But there are palliatives even here. There are possibilities to the poor man of which he makes no account. The cripple can use crutches, and he ought to do so. But he is not bound to run. So the poor farmer can generally improve his condition, by the exercise of industry, economy, prudence in saving and manufacturing manures, by judicious crops, etc., etc., very much can be done. We think, however, that they need encouragement rather than censure; and to have their hope and self-reliance strengthened. Anything that makes them despise themselves or mistrust their own powers is not only unjust but injurious, and indeed ruinous.

We do not censure the orator for the suggestions in his address above

cited, but we bespeak a spirit of kindness and forbearance, and of encouragement for those who as really lament their imperfections as the most ardent reformer.

WHAT FARMERS NEED.

We find the following excellent paragraphs in a report of an address by the Rev. Dr. Huntington, before the Middlesex South Co. (Ms.) Agricultural Society:

"Mr. Huntington announced as his subject not the results of farming but the farmer himself, and the culture of the cultivator. One of the questions for us was what kind of men was it necessary to be in order to raise anything to the best advantage. In the first place he spoke of the dangers arising from the necessary preponderance of manual labor in the farmers occupation, in which intellect was apt to abdicate, and leave everything to rote—plough, sow, cultivate, reap, and thrash, was the rule, binding a man down to physical toil. This should not be, and the farmer should cultivate his intellect, use his head, make his farm his subject instead of being its slave—and here was the merit of modern farming—it was awaking the farmer from his lethargy, and ennobling his pursuit in the eyes of the world.

"One thing which the model farmer wanted, was an invigoration of the perceptive faculties, the getting the eyes open to facts which turn up, whatever way they come, and here was the chief benefit of cattle shows. The farmer goes home with an impulse that he will do his farming better and faith that it can be done better. Another mental faculty he needed was appropriation, to turn to account what he had seen and heard, and having verified what was good, to repeat it aloud. The brain, however, should be trained to discriminate between what was mere speculation and what was theory. The value of this was illustrated at length; and earnest attention to improving, with the aid of the brain, the home lands, the home stock, was claimed to be as good, perhaps, as running off to Western prairies or foreign bloods as the only sources of improvement.

"The natural advantages the farmer had over the average of city classes, in depth of thought, and greater knowledge, was spoken of; and though the citizen knew more of a variety of subjects, yet it was for the farmer by his brain to grasp them all, and be the deep thinker in all branches of knowledge. From the brain the speaker passed to the hand, and in elaborating this spoke of the farmer as an exemplification of the benefit of obedience to the sentence—in the sweat of the brow shalt thou earn thy bread—comparing the effeminacy of those who live without labor with the hardihood of those who earn their bread abroad.

"The third elemental force necessary to a complete agricultural manhood, was that faculty to whose exercise we gave the name of taste. True manliness was impossible without sensibility to the beautiful, and it was a sin to crush it out by contempt or kill it out by neglect.

"There were two directions in which we should exercise taste—in the spirit of order in the useful, and in the ministry of the purely beautiful, raising us into an atmosphere of generous refinement. Music, painting, gardening, florticulture, should be cherished if we would have our children grow up with that love of home which is the mightiest protection against evil.

"The fourth necessary power, the heart, was spoken of as the greatest of all, a sovereign ruling by divine right, the medium of holy influences. It was a sign of a boor, a blunderer, and a bear, to empty the bosom of gentle feelings. The noblest and boldest in earth's history were those who had borne in their hearts feelings of love. We might judge a farmer's heart by the way he treats his brutes. We should not rob our families of politeness to pay it all to the trader we patronize.

"The orator concluded most beautifully, speaking of our duty to keep our New-England pure and true, so that, while founding new ones at the West, we should not let the great exemplar decline. God made the world perfect; sin destroyed its perfection; but it was for us to reproduce Eden everywhere. Middlesex County was not yet finished, and we should go forth and perfect the old enterprises till not a lesson remained to learn and not a power or beauty in nature was left undeveloped."

A LAKE OF PITCH.

A LATE number of *Silliman's Journal* contains an account of that remarkable curiosity, "the pitch lake of Trinidad," W. I. It is situated on the western shore of the Island, near the village of La Braye, which is built on a foundation of hard pitch. The lake stands about 90 feet on a plateau above this village, is circular, and half a mile in diameter, surrounded on all sides with a dense forest. Its face is intersected with a network of water channels, which gives it the appearance of marbled paper. The surface of the pitch is pretty hard, and when the water channels are dry it can be passed over on foot. In the center of the lake the pitch appears to be constantly and silently rising up *en masse*, and what is very singular, numerous pieces of wood are constantly coming up to the surface from below. These are from one to several feet in length, and are forced by the peculiar pressure to assume an upright position, so as to appear all over the lake like stumps of trees protruding through. It is believed that this pitch lake is boiling slowly below. Streams of sulphuretted hydrogen gas frequently issue from beneath, the temperature of which is 97 deg. Fah. The center of the lake is somewhat plastic, but around the sides the pitch is very hard. The water in the streams and small pools is pure and soft; fish are numerous in them, and aligators make them their habitation. Large springs of petroleum are in its vicinity, and about a mile northward there is a bed of brown coal cropping out upon the sea shore; it is about 20 feet thick, and appears from its dip as if it passed under the lake. The pitch is of great depth, for it has been dug into 18 feet in many places. It is believed to be a submerged bed of vegetable matter, undergoing slow distillation by volcanic action underneath. This store of bitumen appears to be inexhaustible. It is used with wood for fuel by the American steamers plying on the Orinoco river. Mixed with pebbles and sand it makes excellent pavements, and ground floors of houses. With ten per cent. of rosin oil, it makes good pitch for ships. The Earl of Dundonald has purchased a tract of 26 acres of it, and has instituted experiments to discover, if possible, some means for making it a substitute for india rubber and gutta percha water-proof or vulcanized fabrics; and he

has already made some vulcanized cloth, which, from appearance, bids fair of future success. If such a result crown his efforts—and every person must wish him success—such an inexhaustable supply of cheap material as this lake furnishes will soon bring down the price of such goods in our country, and thus confer unspeakable benefits upon our people.

INSECTS INJURIOUS TO VEGETATION.

HEMIPTERA.

This order includes various kinds of insects that severely try the patience of the farmer and gardener, and often destroy many of his crops.

The term *bug* is applied to those which agree in possessing the following characteristics: the mouth is furnished with a slender beak, consisting of a horny sheath, which contains three stiff and sharp-pointed bristles or needles, which are confined in a groove. They have no jaws, but suck the blood of animals and the juices of plants, after piercing them with their beaks.

The name of this order, Hemiptera, is formed from two Greek words, signifying *half-wings*, and was suggested by the peculiar formation of their wing-covers, of which the fore part is thick and opaque, and the hind part thin and film-like.

Bugs undergo three changes, like the insects already described. But, unlike them, they do not so suddenly change their form nor their habits. In this order the changes which they all undergo are progressive. The young come from the egg without wings or wing-covers. These soon appear in the form of scales, and as the insect becomes older, become completely developed. During this progress, the insect repeatedly throws off its skin to allow of its growth. But in all this progress it is active, and its habits are unchanged. Some bugs have no wings, but are classed under this order on account of their resemblance to the members of it in general structure and habits.

The order is divided into two groups, viz., Heteroptera and Hemiptera. These, like the name of the order, are of Greek derivation, the former suggested by the dissimilarity of the texture and structure of the fore part and hinder part of the wing-cover, while the latter indicates a uniformity of texture and structure in the entire organ. The differences between the two groups are very marked.

1. The true Hemiptera are those whose wing-covers appear thick and opaque at the base, but thin and trasparent, or wing-like, at their tips. The second group contains those whose wing-covers are of the same texture, thin and transparent throughout.

2. The wings of the Heteroptera are laid horizontally on the back. In the Hemiptera they are not horizontal, but inclined, like the wing-covers of locusts.

3. In the former, the wing-covers cross each other obliquely at the end, so that the thin part of one overlaps the thin part of the other. In the latter, they do not cross each other.

4. In the first group the head is more or less horizontal, and the beak is-

sues from the fore part of it, and is abruptly bent backwards beneath the under side of the head and the breast. In the second group, the face is vertical, or else it slopes obliquely under the body, so that the beak issues from the under side of the head close to the breast.

5. The first order includes insects that live on animal and also on vegetable juices. The second contains only those living on vegetable juices.

The first group under this order contains various bugs, properly so called, as squash bugs, fruit bugs, etc. We can refer to only a few of the many species.

Coreus tristis, or Common Squash Bug. This was called C. tristis by Dr. Geer, C. moestus by Gmelin, C. rugator by Fabricius, and Coreus ordinatus by Say. This bug, unfortunately, is well known to gardeners, but their habits are perhaps unknown to many. In the latter part of October they quit the plants on which they feed during the months previous, and concealing themselves in crevices, or other secure places, they there pass the winter in a torpid condition. With the return of warm weather, they quit their winter quarters, and as they meet under the young leaves of the squash, in June and onward, they pair, and lay their eggs immediately. At this time these insects are to be found on the ground, or on stems near the ground, but as daylight disappears they get beneath the leaves, and lay their eggs in little patches on their under surface. These eggs are round, flattened on two sides. The young bugs, which are soon hatched, are shorter and rounder than the perfect insect, and of a pale ash color. As they become older, they also become more oval, and of a dull ochre-yellow. They live in little swarms, or families, beneath the leaves on which they are hatched, which soon wither and become brown, dry and wrinkled. They are then abandoned by the insects, which soon exhaust another leaf in the same way. In September and October they become perfect insects, with wing-covers and wings. It is then six-tenths of an inch in length, of a rusty black color above, and a dirty ochre-yellow beneath; the sharp lateral edges of the abdomen, which project beyond the closed wing-covers, are spotted with ochre yellow. The thin, overlaping portion of the wing-covers is black, the wings transparent, but dusky at their tips. The ground color of the insect is yellow ochre, and the rusty black hue of the head, thorax, thick part of the wing-covers and legs, is occasioned by numerous black punctures. On the back part of the head, behind the eyes, are two glossy elevated spots, called eyelets.

In some species of Coreus is a thorn at the base of the antennæ, and the legs are thorny; but these are not found in the squash bug.

When crushed they give out a very strong odor, like that of an over-ripe pear.

To prevent their ravages, they should be killed as they are about to lay their eggs. The eggs may be crushed. A little time spent every day, at the proper season, will prove a valuable service. That which promotes a rapid growth of the vines is also useful. When the plants have attained a vigorous growth they suffer comparatively little from this insect. Hence rich fertilizers are valuable—as the drainings of a barn-yard, etc.

Phytocoris lineolaris, or as it is called by Say, *Capsus oblineatus*, or Little Lined Plant Bug. Insects of this genus are known by the following characteristics:

Eyelets wanting, antennæ four jointed, first and second joints much thicker than the two last, which are slender and thread-like; the head short and triangular; body oval, flattened, and short; thorax broad triangular, with

the tip of the anterior angle cut off, and the broadest side applied to the base of the wing-covers. The latter, when folded, cover the whole of the abdomen, and their thin portions have only one or two little veins; the legs are slender, and the shanks bristled with little points.

The P. lineolaris measures one-fifth of an inch or more in length. The males are darker than the females, being almost black above, head is yellowish, with three narrow, longitudinal stripes. A very good means of determining this species is by a yellow spot in the form of a V, often imperfect—only three spots being visible at the place of the extremities of the letter. It is most abundant in June and July, according to Dr. Harris, and is found in all parts of the Union. It lives upon dahlias, marigolds, and other flowers, and on potato vines, etc.

Irrigation is recommended by Dr. Harris, as the best security against their ravages. Soap suds, potash water, decoctions of tobacco or walnut leaves, or a sprinkling of air-slacked lime, are useful. Chickens and *young* turkeys and ducks, will devour great numbers of them.

Hemiptera Homoptera, the second group of the order Hemiptera, is subdivided into three large tribes:

1. Cicadadæ. *Harvest Flies*, or Cicadians. These insects have short antennæ, which are awl-shaped, or tipped with a bristle. Wings and wing-covers, in both sexes, inclined at the sides of the body. Three joints to their feet, skins firm and hard. The males make a peculiar buzzing sound. The females have a piercer lodged in a furrow, beneath the extremity of the body. They are readily distinguished by their broad heads, large and very convex eyes on each side, and three eyelets on the crown. On the back part of the thorax is an elevation, in the form of an X. Their wing-covers and wings are transparent and veined. The noise made by the males is by means of a membrane on their sides, which is acted upon from within by a muscle. These drum-like membranes are not visible on the outside of the body, being covered with convex triangular pieces on each side.

Cicadians do not leap. The legs are short, and the anterior thighs are armed beneath with two stout spines.

Cicada Septendecem, (of Linnæus,) or Seventeen-year Locust, in the winged state is black, wings and wing-covers transparent, the thick anterior edge and larger veins of which are orange red, and near the tips of the latter there is a dusky zigzag line in the form of a W; the eyes are red, the rings of the body edged with dull orange, the legs of the same color. The wings expand from $2\frac{1}{2}$ to $3\frac{1}{4}$ inches.

The female lays her eggs upon a small branch of a tree, which she pierces obliquely to the pith, and by a kind of sawing operation forms a longitudinal fissure, of sufficient extent to receive from ten to twenty eggs. This process occupies some fifteen minutes, and several fissures are made in the same limb. The Cicada thus goes from limb to limb and from tree to tree, till she has deposited some four hundred or five hundred eggs. She thus becomes exhausted, and soon dies. The insect abounds most on the oak, but occasionally resorts to other trees and to shrubs, and not unfrequently to fruit trees.

The eggs are one-twelfth of an inch in length. They are hatched in 52 days after they are laid, according to Dr. Potter, and according to others in 14 days. The young insect is one-sixteenth of an inch in length, yellowish white, eyes and claws of the fore-legs reddish, grublike in form, with six legs; on the shoulders are little prominences in the place of wings, and under the breast is a long beak for suction.

Some of the habits of the young insect are very wonderful. Soon after

they burst the shell of the egg that contains them, they move to the side of the limb, and voluntarily drop to the ground. Thus they bury themselves in the soil, attaching themselves to succulent and slender roots, on the juices of which they subsist. After a time they gradually ascend to the surface, and live in their burroughs or on the surface, according to circumstances, till they shed their pupa skin and change to perfect insects, which are soon strong enough to fly. A good description of this insect was given by a correspondent in our October number, page 205.

Cicada Canicularis, or the Dog-day Harvest Fly, so called from its appearing near the commencement of dog-days, is also musical. This is sometimes mistaken for the

Cicada pruinosa, or Frosted Harvest Fly, found in the Middle States. Neither of these species is numerous enough to produce much injury to our harvests.

Tettigonia vitis, is an insect that has proved to be very destructive to grape vines. It is one-tenth of an inch in length, pale yellow or straw color, with two small red lines on the head; the back part of the thorax, the scutel, the base of the wing-covers, and a broad band across the middle are scarlet color, tips of the wing-covers blackish, with little red lines between the broad band and the tips. The head is crescent-shaped above, the eyelets just below the ridge of the front.

They are found on the under part of the leaf through most of the summer, first appearing in June in the larva state, and destitute of wings. They generally remain quiet, their beaks thrust into the leaf, but if disturbed they leap nimbly from one leaf to another. They often cast their skins. They arrive at maturity in August.

The leaves thus attacked become yellow, and then dry, and the injury extends to the fruit and to the growth of the wood.

In the autumn they retire for shelter beneath fallen leaves and tufts of grass, remaining there till spring, when they emerge from their hiding-places, deposit their eggs, and die.

Fumigations with tobacco, beneath a movable tent placed over the trellis, insures their destruction; but it may be necessary often to repeat the process.

TOADS. (Bufo vulgaris.)

From the earliest recollection of the "oldest inhabitants," this little creature has been under the ban, a source of terror to every little miss, an object of disgust to maids and matrons, a by-word and term of reproach for every old aunt and grandma in the land, who would never seek farther in their vocabulary of opprobrious terms for a suitable name for any little urchin, than to call him a "little nasty *toad*." Boys have made it their sport, have pelted it with stones, pierced it through and through with sharp sticks, substituted it in the place of a ball, upon a bat-board, throwing it high in the air, and exulting in its torture; and even men in the field, hoeing their crops, have been wont to rudely thrust it aside with their hoes, as a useless reptile, wondering for what purpose such a loathsome object could have been created. The toad has been accused of being a venomous reptile, a fit object

of dread, a poisoner of choice garden plants, deserving banishment from every one's premises, and fit only to inhabit an *uninhabitable* morass or desert. The toad has, however, occasionally been brought into respectable notice by curiosity hunters, and newspaper paragraph writers, whenever he has chanced to have been found in a torpid state in the cavity of a rock, or in the trunk of a tree, in which cases, an antiquity has been ascribed to it equal to that of Egyptian mummies, or perhaps set down as of antediluvian origin. In this manner, poor toady has gone the rounds of newspaper notoriety, not for any merit or value it might have possessed, but as a matter of mere curiosity. But this poor and despised creature has not been left entirely friendless, nor without an advocate.

Naturalists have placed him in the scale of usefulness where he belongs, and have shown that he is not deserving the very many opprobriums that have been heaped upon him.

To the gardener, the toad is a very useful assistant, as it devours a great many insects and worms that prey upon the plants. In the darkness of the evening, the toad comes forth from its hiding-place, and commences its work of extermination. Noiselessly it passes through the garden, regaling itself upon the insects that have just begun their nocturnal work upon the tender plants. No one but those who have observed the movements of this little animal, can form any correct estimate of its usefulness. A few evenings since I watched one a short time, and observed that in the space of fifteen minutes, it devoured some fifteen or twenty insects, of that class too, that in the day time, lie concealed from the observation of the birds, but at night go forth in armies to carry on their work of destruction, to lay waste the gardener's toil. It would be a matter of economy for those who till the ground to provide the toad with a suitable place for retreat in the day time, thus virtually saying to him: "My dear little fellow, I value your services, and will do all I can for your comfort."

With proper appreciation for his services, and care for his preservation, the toad will become quite domesticated, and will continue his valuable work for years, simply for his "board and lodging." Those who wantonly destroy the toad, should be classed with those who kill harmless and useful birds.—*Ohio Farmer.*

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

POLICY OF COTTON GROWERS.

DEAR SIR:—ON 189 page of Sept. number you have an article from the Mobile *Advertiser* on COTTON MANUFACTURE IN THE SOUTH.

I do not think the produce of cotton to be "*too great*," but I know the price is not remunerative to the grower. How we can remedy is an afterthought, and may not be known and adopted for years. The disparity between profits to the producer, the carrier, the manufacturer and the seller of manufactured goods is too great. The commission merchant who only charges the *small* pittance of $2\frac{1}{2}$ per cent. will in a very few years have his marbled halls and "ham boiled in champagne," whilst the vast bulk of the growers may live in their *log cabins* and live upon middling corn bread and

greens. The manufacturer making his "five times as much for converting the cotton into cloth as the farmer for producing the raw material" soon becomes a millionaire, whilst the producer and his operatives are under the ban. Until producers know and act upon, that "mind makes the man, and the want of it the fellow," until we educate and become self-acting and thinking beings, this will continue. We see it in every other position in society, and why not here?

There are two things in my humble opinion that will greatly aid the planter, and as much aid our whole country. The cotton planter and his negroes are now as much needed in America as any branch of business, as any other operatives. Was the South to devote its energies to producing grain, meat, wool, mechanics or the navy, how long would it be ere the North would feel the need of her manufactures?

What I now propose I have before done, and one of them many years ago, viz., Planters to restrict sales of cotton to one-eight or one-tenth of the crop per month. If sent forward, which is best for the mass, prohibit selling as now, in the short period of about 120 days. The other, to connect with the ginning machinery, the spinning of a portion, at least, of our crop. This matter was suggested some ten or twelve years ago, hoping that some large planter of enterprise would give the subject thought. It was reported a few years ago that a large Louisiana planter was building for this object, but he was taken away ere he had his buildings.

The continent draws from England largely of twist, which can be supplied by the planter, and thus realize at least two prices for capital and labor employed. The capitalist buys our cotton in the three or four last months of the year and holds until the manufacturer needs, then usually makes his profit and interest. If the planter will hold for the manufacturer he can demand the profit and interest. If the pork producer or the flour producer would ship to New-Orleans in the short space of three or four months the supply for the year the quantity alone would depress the price. They know this and send forward as demanded, whilst the Southern cotton, sugar, tobacco and rice planters push in as early as possible—the factors advise rapid sales—the want of the "golden egg" as soon as possible, to double, by long shares, causes in part this counsel.

If only one-half the planters will attempt either or both of these, it is my conviction that ere five years profits would be more equable and the million clothed cheaper. The demand for cotton if not backed up by the millionaires must much exceed our crops. The profits by the manufacturers and salesmen are too great, and thus debar a larger use of cotton and fabrics. Cotton worth 10 cents per pound when costing 5 cents to spin will sell for about 20 cents, and thus pay a large profit, even double that of producing, for the increased capital needed to spin 100 bales on an unsettled plantation would be small. The young and old negroes could be employed say 4 or 5 months at least, as the clearing and improving would justify. These are mere hints for wiser heads to elaborate. Yours, etc. P.

FRENCH DECIMAL SYSTEM.—In our last issue on page 199 our printer made us say that a deca-metre =.03937 inches. We wrote this of the milli-metre. It was interlined in the copy, and inserted in the wrong place. Please make this correction in the margin of your copy, or place the decimal point after the 9.

FATTENING ANIMALS.

CERTAIN facts on this subject are uniform and perfectly well settled. Others are very inconstant and appear subject to no uniform law. Some well-known facts are of very easy explanation. Others seem to contradict ordinary principles of philosophy. Indeed, this department of physiology, if it deserve so worthy a name, partakes of the imperfections and doubts attached to many theories.

We use the *conditional* "if," for we are not quite willing to admit that a system, the entire object of which is to produce an abnormal, that is, an unhealthy, diseased action in the animal, is a part and parcel of any true philosophy. Would it not be worse than ridiculous to pretend to arrange into a science the means and modes of producing all manner of diseases? As a counterpart to its opposite, it may be admissible, giving clearness and emphasis to it. By itself it would be absurd. It is or should be regarded like that part of a mathematical demonstration which shows that the opposite of the point to be proved is absurd. By itself, it is not demonstration. It only prepares the way for actual demonstration. But this is of little moment. We must come to our subject.

Some principles and facts, as we have said, are well settled. Carbonacious food promotes the deposition of fat. Nitrogenous food produces muscle, with its natural and healthful proportion of fat, which is, indeed, very small. Wild animals are never fat, with the exception of those who lie dormant through the winter, sustaining life by the consumption of the fat accumulated in autumn. This is alike true of herbiverous and carniverous animals. Those examples of domestic animals, as dogs, etc., who grow fat, are of no account, as their entire habits, both of eating and of living, are artificial. So also the wild animals of particular districts, who have access to some peculiar kind of food, are of no authority in settling general facts and principles, though they are very important in showing the effects of that kind of food.

Again, the formation of fat is very much akin to the secretion of milk. Hence it is that great milkers are seldom fat, and are not easily fattened. So it is also true that cows becoming fat, generally give a diminished quantity of milk. If we would fatten a cow, it is desirable to begin by drying up her milk.

Other facts seem to contradict received theories. We have more than once alluded to the fattening properties of turnips. It is well known, and a constant practice in England, that cattle are fattened upon turnips and hay, the latter being fed in moderate quantities and of inferior quality. What received theory explains this?

We do not remember any careful experiments to determine the connection between the quality of the milk and the condition of the animal, although general statements are abundant; but if such were made, we apprehend the results would be very diverse. Some cows are lean because they convert all their fatty feed into butter, etc., which is secreted in and is a part of the milk. Other lean cows give very mean milk because their secretive organs have an imperfect action. Some cows are fat because they convert all the fatty elements into solid deposits of fat, while the milk is almost destitute of cream. Others still may not possess the power of converting these elements into anything, but reject them with other useless and effete matters.

We do not believe that any two animals would give precisely the same result, under such a course of experiments. Physiological phenomena vary like human countenances.

Facts which are well settled ought to be understood and acted upon. Those who experiment on these and kindred points ought not to waste their time and labor, and mislead the public, as many have done, by unphilosophic experiments, or by carefully managed experiments in peculiar or unnatural circumstances. For example, if a cow has been accustomed to roam at large and is tied up in a stable, and deprived of all exercise, no experiment in fattening her is reliable. She may be fretted by the mode of confining her, or she may be discontented and uneasy for loss of company, or the sudden change in her habits may have a material influence, or the food given her may be that to which she is unaccustomed and for which her digestive organs are not prepared, or the quantity may be improper. Some animals require more food than others, though of equal weight. So other causes of error may exist. Hence although all positive arrangements may be as they should be, in a given experiment, the neglect of some other conditions may be fatal to its value as a representative of a class.

Certain differences, of little apparent consequence, are often test points. Thus, raw, sour apples are not valued much as feed for fattening hogs. When cooked they are very generally approved. Boiled potatoes are much more efficient in this way than raw potatoes. Some exercise is necessary for the health of all animals. Too much is fatal to any effort to fatten. These and such-like cannot be safely overlooked in any experiment on this subject. So too a given amount of exercise may, under the circumstances, be excessive, while it would be only moderate for another of more roving habits, although this might perhaps be regarded only as a source of discontent. But we do not believe this is of so little importance as seems to be supposed. In the human species this is an essential point. Why may it not be with all animals? Shut up a person, long accustomed to much society, in a room by himself, or from which only certain persons are excluded, of what value would any experiment be in relation to digestion, appetite, and even general health? And it should not be forgotten that natural propensities and instincts are quite as strong in brutes as in men.

So too warmth of temperature has an important influence in the fattening of animals. A cold temperature requires an increase of food, and *vice versa*. It is therefore difficult to fatten animals that suffer from cold. Even when fattened such exposure consumes the fat and diminishes their energies.

We have much to learn on this subject, but we fail in making a practical use even of what we do know. Perhaps it is because we consider the truths as of small importance. For example, carding a cow daily as one would groom a horse is, and is admitted to be, always useful. But how sadly this treatment is neglected. It is as valuable to the cow, so far as her good condition is involved, as it is for the horse. And yet even few hard-working oxen are properly cared for in this respect.

CENSUS OF ROXBURY.—Whole number of inhabitants 18,699: Ward 1—4242; 2—1960; 3—5161; 4—2853; 5—2494. In 1850 the population was 15,012; increase in five years, 3687.

SHORTHONED CATTLE VERSUS LONGHORN, HEREFORD, DEVON, SUSSEX AND SCOT.

SIR:—If memory serves me right, in the year 1816, I saw tried or fed together, for two years, a three year old shorthorn Durham, valued at £20; a three year old Rollwright or Bakewell longhorned steer, valued at £15; and a three year old dun Highland Scot, value £12—all equally good of their kind. The first winter they lay out in the open air—no hovel or cover for them to go under—in a close three miles from Boston and about one mile from the sea, and wintered upon nothing but hay. The following summer they were grazed upon first-rate land together; and the second winter they lay again in the open air, in the same field as they were before wintered in, with 7lb. of cake per day each, with some strong coarse hay; and they were grazed in the same close as the summer before, without cake, until the last week in September, when they were sent into Northamptonshire, and fed under cover, and had 14lb. of cake per day, until they came to the great Christmas market in Smithfield, where they were sold; the shorthoned ox making £82, to Mr. Somers, of Somers Town, weight 151st. 6lb., of 14lb. in the stone. The longhorned ox sold for £52 10s. to Mr. Parmington; weight 99st. 11lb. The Scot was sold at £45 to Mr. Parden, weight 86st. of 14lb. The three above oxen was exhibited the last year at Boston Fair, on the 4th of May, and at Peterborough Fair on the 2d of October, with seven Lincolnshire oxen of the old Turnill breed, for which the owner was bid £60 each, or £420 for the seven Lincolns, before they had eaten Linseed cake. I saw weighed, in the spring of the following year, a gigantic worked Lincolnshire shorthoned ox, a very large old-fashioned longhorned ox (not worked), a very fine boned smart North Devon worked ox, and a great polled Scot (not worked.) They were all good of their kind, and in a lean state when weighed, and were all grazed in one field of first-rate land, near Boston, for 24 weeks, when the shorthorned Lincoln ox gained 36st. of 14lb., which was 15 per cent., the most weight; the giant Sussex ox next; the longhorned ox third; the handsome Hereford fourth; the great polled Scot fifth; and the North Devon being so much less in frame and bone, gained the least weight in 24 weeks' grazing. I am satisfied that the North Devon consumed much the least food.

It is to be found in many of the files of journals that Mr. Coke, the late Earl of Leicester, tried an experiment with a gigantic shorthorned ox of the old Teeswater kind, against two fine-boned handsome North Devon oxen of the same age. They were fed in the stalls for a long time, and the food weighed to them, until the shorthorned ox had gained 100 stone in weight, and the two Devons together 140 stone, but upon investigation, it is said, Mr. Coke found that the giant shorthorned ox had consumed a little more than both the Devons. "Gigantic animals," said Mr. C., "have gigantic entrails, and it takes a gigantic quantity of food to fill them." The trial proving in favor of the Devons, is said to be the cause of Mr. Coke breeding North Devon cattle. I knew a Lincolnshire-bred ox, with a dip of the Durham in him, in 1815, that gained 50 stone of 14lb. in 46 weeks, fed upon grass and plenty of Sweede turnips only, for more than half the year. The weight of this ox was 140st. 8lb. of 14lb. to the stone; slaughtered by Mr. Somers, of Somers Town.

It was proved by Mr. Bakewell and many other clever men, that great, coarse, large boned animals consumed much more food than fine boned, high bred animals, which have greater propensity to fatten. It may easily be proved whether Mr. Coke's bailiff's evidence or statement was correct in the three oxen's weight of carcass and food, because any breeder may try the experiment with a shorthorn and a North Devon. It is worth trying.—*Corr. London Farmer's Magazine.*

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

BEETS — BEET-SUGAR.

Mr. Editor:—The beets of the New-York market are of a very indifferent quality. They are of two kinds, the round and the oblong. In comparing them with those of Europe, they are very inferior. A beet root in France weighs two and four pounds or more, and such growth might be attained here, if it were properly cultivated.

The beet root of France is not only larger, but sweeter. There are two kinds, the red and the white. The former are used exclusively as food, the latter in the manufacture of sugar. Both extend their growths and ripen above the surface.

We will not treat of the red beet, which is used as food, but make a few suggestions upon the white, which has a shade of yellow, and which is used in the manufacture of sugar.

It is well known that the prohibitory system of Napoleon I. in France, occasioned the introduction of beet sugar. This form of industry has now become so extensive in that country, that to protect its colonies which had furnished cane sugar, and which could not compete with the beet root sugar of France, it was found necessary to establish an impost upon the native sugar, which was sold at a higher price than that of the colonies.

The yellow beet should be cultivated in a good soil, well manured, the roots being grown a foot from each other, and all weeds kept down. When it commences to ripen, the tops should be cut. These tops are eaten readily by cattle, and are useful in the production of milk, when fed to cows.

Beet roots destined for the production of sugar should be kept in a dry place, and protected from the cold.

In sowing beets for this manufacture, the cultivator may use profitably a machine similar to those used in various parts of the country.

The white beet root, if it were cultivated in Old England, would compete successfully with the sugar manufacture of the South.

I will now point out to the farmer the means by which he can furnish a substitute for imported sugar in his family:

Take the white beet root, wash it clean, grate it to a powder, and then press the juice from it. Place it over a fire in a copper kettle. Heat it just to a boiling point, so that the bubbles will rise to the surface, constantly stirring it with a wooden spoon, so as to secure it from being burned, without removing it from the fire. If heated too much it will burn, and have a disagreeable taste. When cooled, you will have an excellent syrup for common family use, and by care, the process may be continued, until it is sufficiently reduced to form sugar when cool.

To improve this syrup, for particular uses, it may be clarified by filtration through powdered wood charcoal This will delay its fermentation. It is necessary to be very careful in cooking the juice to skim it well.

The residium of the beet root, after the juice is expressed, is very useful for cows, producing large quantities of good milk. At the sugar factories at St, Maur, near Paris, this material is sold to persons in the country who raise stock, and is regarded as a very nutritious kind of feed.

Try it, and you will see its results. SANIEWSKI FELIX.

[Translated from the French manuscript by M. P. P.]

MR. CAHOON'S SEEDLING RHUBARB.

THE editor of the *Prairie Farmer*, who recently visited the garden of Mr. B. P. Cahoon, of Kenosha, Wisconsin, says:

"Mr. Cahoon has a farm of six acres, all told, on which he contrives to get a pretty fair living, if we can judge from appearances. He divides it between pie-plant, gooseberries, currants, evergreens and flowers.

"But the pie-plant is the thing here. He has about three acres in this root, of his own seedling. It stands on ground which was a few years ago a marsh covered with alders, willows and water. Springs cropped to the surface just at its upper edge and flooded the whole region. Mr. Cahoon put in drains 30 feet apart and three feet deep, and covered them. They were made of four pieces of timber. The whole was given one coat of manure and no more; since which it is dry enough for a wet time, and wet enough for a dry one, and will produce anything which is willing to grow on reasonable land. Such masses of pie-plant never grew on any soil before. We counted on one root fifty-five stalks, of which the largest was two feet in length from root to leaf, and would girt eight inches or more. The others were of all sizes down to fifteen inches in length, and an inch in diameter, though the average would be twenty inches long and four or more in circumference. The root was not an unusual size, and was only an average of those which have stood three years and allowed a fair chance. Mr. C. showed us a stalk preserved in spirits which is five and a half inches wide, by 27 long.

"These large stalks are commonly flattened, but the rest are not so by any means. We saw on the same root stalks as round as a rifle barrel; some of them were three feet in length and an inch and a half in diameter, while others would be flattened so as to be twice as wide as thick. Nor do they preserve one color: some are green, some reddish like the Victoria, and some speckled with a purplish red like the eggs of a turkey. We are satisfied that nobody can tell a pie-plant by looking at the stalks and leaves, without knowing more about it.

"Mr. C.'s mode of culture is to set the rows five feet apart and two feet apart in the rows. At this distance they cover the ground in a single season. He has set 3,500 plants this year, commencing the 10th and ending the 15th of May. He cuts about three days in the week, cutting about four or five hundred pounds per day. He puts up in boxes or bales, and sells in Milwaukee, Chicago, Detroit, Buffolo, or elsewhere—getting about $4 per 100

pounds. The cutting is continued till frost comes. In cutting he is guided by judgment, taking all from a plant he thinks it can spare, and going over the same ground 5 or 6 times in a season. Then in spring and fall he makes sale of roots. He sold last spring 2,500 roots or more.

Fall Plowing, or Buckwheat to kill Wire-Worms.—We take the following from A. C. Dickinson's Address before the Cortland county (N. Y.) Agricultural Society.

"Ploughing in the fall is to become more fashionable than formerly, as I regard it as the best and only sure remedy to destroy the wire-worm which has made, and is making, sad havoc of almost every kind of crops, wholly destroying some. Ploughing late in the fall will not kill all, but most of them. In three years I think they may be nearly or quite all destroyed, and it is the only remedy I know of to destroy the most mischievous and ruinous insects the farmer has to contend with. I have heard it said that five bushels salt to the acre would destroy them, or one hundred bushels of lime. I have tried both, and sowed ten bushels of salt to the acre, and they only laughed at my folly. I tried one hundred bushels of lime as recommended, and they fattened on my bounty. I have only proved one remedy for the rascals, and that is to break the sod and sow it to buckwheat; plough late and as often as possible in the fall, and then sow it to peas in the spring; with the like ploughing next fall they will not destroy any crop next season.

Trial of Agricultural Machines in France.—The trial of agricultural implements and machines, on exhibition at Paris, has been had before the Grand Jury on the farm of the Postmaster General, M. Dailly, at La Trappes. Many of the great men of Europe were present, as were many eminent Americans—ex-President Fillmore among the number. The experiments consisted of drainage machines, ploughs, thrashers, sowing machines, reapers, and mowers.

Hundreds of machines were tested, and for the minor ones, the English carried off two-thirds of the honors; but the great interest was felt in the reapers and thrashers. The contest with the former was among the Americans; they had the whole field to themselves. Manny's, Wright's, (Adkin's Automaton Raker,) Hussey's, and McCormick's reapers, were tested together. The latter came off victor. Four thrashing machines were tried, and six men with flails, to test the difference of the labor. "Pitt's American thrasher secured the prize." The six men thrashed 60 litres of wheat in thirty minutes; Pitt's machine 740 litres; the English machine 410; the French machine 250; the Belgian machine 150. In these trials of reaping and thrashing machines America stood singularly preëminent.

STATE FAIRS.

KENTUCKY AGRICULTURAL SOCIETY—SIXTH EXHIBITION.

THIS fair is pronounced as very successful. Kentucky stands among the foremost for fine cattle. Those of Aitcherson Alexander, Esq., of Woodford, are spoken of with especial commendation. A new variety of hemp, grown by Wm. L. Vance, Esq., of Woodford Co., was shown, the stems being upwards of twelve feet long and average but a quarter or half inch in diameter at base. The seed was procured in France. It requires a season of five months.

The sheep were fine, and mostly of the Cotswold and South-down breeds. The hogs were Yorkshires, Irish Grazier, and Suffolk breeds. The Grazier is said to be the favorite in that region.

The third day was devoted to the exhibition of horses, mules, etc. The horses in harness, matched horses, and mare colts under one year of age are described as making a capital show.

NEW-YORK AGRICULTURAL STATE FAIR.

THE correspondent of *The Boston Traveller* discourses thus unceremoniously in relation to our State Fair:

"The State Fair yesterday was visited by upwards of 20,000 people, and should the weather continue fine to-day, it is calculated that nearly as many more will be on the fair grounds as yesterday. The receipts now foot up $6,200, and the managers confidently expect them to finally amount to $10,000. The premiums awarded will be nearly $8,000. Last year, at New-York, the receipts were $9,000; the premiums about the same amount as this year. The south-western counties promised last year that when the Fair was held in their midst, they would do better than had heretofore been done in any other section of the State; but they have only redeemed their promises so far as the pecuniary attendance is concerned.

"The displays of Butter, Cheese, Honey, Soap, Vegetables, Grains, and in fact all the agricultural products of a farm would have disgraced a county fair, consequently in a State fair were of little account. What would be thought in Massachusetts of an exhibition supposed to contain the products of the State, in which the whole assortment consisted of one specimen of Beans, one of Flour, two of Honey, six of Butter, (all from one county,) six of Potatoes, one of Sweet Potatoes, two of Beets, two of Soap, three of Tomatoes, one of Water and one of Citron Melons; no Peaches, no Grapes grown in the open air, no Flowers except Dahlias; in fact the only things fully represented were Apples, Pears, Squashes, Pumpkins and Cabbages, besides some beautiful Grapes from the hot-houses of the Messrs. Hovey, of Cambridge, and to New-Yorkers it was a painful thought that at the Annual Fair of their own State they should be indebted for the most creditable display of several of the products of the nursery to a concern from the little barren State of Massachusetts.

"The horse stock of the South-western counties is nothing to boast of. The Floral Ball takes place to-night, and the ladies riding and driving match to-morrow. The fair is attended by the usual concourse of outside exhibitions.

"As regards the morale of State fairs very little can be said favorably. The scenes of vice introduced into the rural districts, by the hangers-on, or followers of all exhibitions of a public nature, I believe do more real injury to the inhabitants than the benefit derived from the display of Agricultural and Horticultural stock will ever compensate for, because the injurious effects fall almost entirely on the young, inexperienced and verdant, who do not expect to be benefitted by the exhibition, but make the occasion one of display, in other words they consider it a first-rate chance for a frolic."

We publish the above as we find it, and would invite attention to the latter paragraphs, not to endorse or to deny them, but to warn "all men" to take care how they give occasion for such statements. The show of the finest cattle is a mean item to offset against the tarnished virtue of men and women.

We have read more than once, severe censure against the practice of a contest among female riders on such occasions. No sensible parent could suffer a daughter to enter such an arena. In its utter unfitness for female modesty, such public display is second only to the race-course, and should be avoided as such by all respectable females.

The following account is an abstract from the *Rural New-Yorker,* and is more favorable, and *perhaps* more just:

"Compared with former shows, it was universally pronounced superior in the variety and quality of animals and articles exhibited, and number of spectators present, to any fair held by the society since that of 1851, at Rochester.

"The stately and dignified short-horns were well represented; of Devons there was a fine show, though some of the best herds were unrepresented. The Herefords were present in greater numbers than usual, we think, though never very numerously represented heretofore. The Ayrshires do not appear to gain in popular favor, or at least are not largely represented at our fairs. Of Grade and Native Cattle there was neither so large nor fine a display as we had anticipated—the farmers of the Southern Tier having apparently neglected to enter the arena of competition. The Fat Cattle shown, though not numerous, were superior, and attracted much attention. The Genesee Valley sustained its high reputation.

"Sheep of the various breeds were well represented. Of some there was not a large show, but it comprised many superior specimens, especially of the Essex and Suffolk breeds.

"In Agricultural Implements and Machinery and Mechanical Tools and Inventions generally, the display was one of the largest and finest we ever witnessed at any exhibition. This department was not only very complete in the variety it comprised in the several branches, but the new and improved implements and machines presented—the perfected inventions of former years, and the novelties recently introduced by the active brain-power of the 'Universal Yankee Nation'—demonstrated decided progress in the production and perfection of labor-saving machinery adapted to the most important operations of Agriculture and Manufactures. The contrast between this and former exhibitions was highly creditable to the numerous inventors and manufactures who contributed the results of their skill and industry, while it must have been most gratifying and satisfactory to farmers and others inter-

ested in this important branch of improvement. Columns might be filled in enumerating and describing the more important and valuable machines and implements, but want of space compels us to omit or defer mention of even the most noteworthy.

"Floral Hall was the especial attraction of all devotees of Flora and Pomona, and thousands of 'the rest of mankind.' It was most tastefully arranged and contained a large and magnificent display of Fruits—one of the best, if indeed it was not *the best*, horticultural exhibitions ever made by the Society. Of Apples, Pears, Plums and Grapes, the show was in all respects superior, and received, as it merited, universal admiration and commendation. Hovey & Co., of Boston, exhibited 210 varieties of Pears, while Ellwanger & Barry, and A. Frost & Co., of Rochester, were large contributors. But we cannot particularize. The display of Plants and Flowers was also creditable, while the arrangement of the whole was in excellent taste. The most attractive feature was the fancy Floral Designs representing various counties of the State, mostly in flower and evergreen work. The idea is a novel and happy one, and worthy of future attention. Of these emblatic designs we may give some descriptions hereafter.

"The department embracing Domestic Manufactures, the Dairy, etc., was *not* highly creditable, nor what might reasonably be expected from the location of the exhibition. The Poultry show was decidedly meager, and we saw none so *feverish* as to do it reverence."

ANNUAL EXHIBITION OF THE PENNSYLVANIA AGRICULTURAL SOCIETY.

The Fifth Annual Exhibition of this Society was held at Harrisburgh 26th, 27th, 28th, and 29th of September. The arrangements on the ground were more complete than at any previous exhibition. The shedding for stock was more than sufficient for the purposes of the exhibition, as the display in this department, although there were many fine cattle on the ground which attracted the attention of nearly every visitor, was not large.

In the horse department there was a very large number of entries, some of them animals which would have reflected credit upon any exhibition. The display of heavy draught horses was particularly fine.

The immense buildings erected for the display of fine and mechanic arts, etc., notwithstanding their great extent, were well filled with attractive articles. Some idea of the contributions may be inferred from the fact that the avenues through the building, if extended through a continuous line would have given a single avenue of 1800 feet in length with shelving on each side for the display of goods.

In addition to these extensive buildings, there was a large circular tent appropriated to the display of seeds and vegetables which was well filled with very creditable specimens, giving evidence of the increasing interest felt in this direction by farmers. We are informed that the display was fully equal to that of last season.

Another large tent was appropriated to the display of fancy needlework, preserves, etc., and, it is said, it has never been equalled at any exhibition of the State Society. There was in this tent, also, a most tempting display of preserved fruits, etc.

A third tent was set apart for dairy contributions, flour, etc. The display of butter and cheese was small, but very excellent.

The fourth large tent was appropriated to carriages, fire engines, etc., of which there was a very handsome display.

The poultry department was perhaps better filled than any other.

A third large building some two hundred feet in length, with double avenues, was appropriated to the exhibition of agricultural and horticultural tools, and of machinery, requiring the aid of steam power to operate them; the larger implements, such as horse powers, threshers, reapers, mowers, corn and cob-crushers, etc., were all ranged in neat order around the outside of the building. There has never been a better exhibition of farm implements than on this occasion. The articles generally, appeared to be not only well made and finished, but efficient and serviceable.

NEW-JERSEY STATE FAIR.

The first Exhibition of the New-Jersey State Agricultural Society was held at Camden on the 18th, 19th, 20th, and 21st of September. The grounds selected were most appropriate for the purposes of the Society, and were in themselves a feature worthy a visit. Although the display in some of the departments was not as full as it should have been, it will be recollected that this was the first exhibition of the Society, and as a first effort it was creditable in every respect.

The display of horses was of the finest character, and a very attractive part of the exhibition.

Of fruits and vegetables there was not as fine a display as there should have been. Few States are so capable of presenting a magnificent display in this department as New-Jersey, and we have no doubt but that she will give evidence of her ability in this respect another season.

The stock, although not large in number, embraced many first-class animals of the various breeds.

Of agricultural implements there was an immense number on exhibition, and among them many of the most approved kinds in use.

In the mechanical department, as in that devoted to the fine arts, domestic manufactures, etc., the contributions were sufficiently numerous and attractive to enlist general attention.

As a whole, the exhibition may be regarded as entirely successful, and the friends of the Society have everything to encourage them to persevere in the good work so auspiciously begun.

The Michigan State Fair, at Detroit last week, is reported to have fully sustained the reputation of the Peninsular State, the exhibition indicating decided improvement in both agricultural and horticultural productions. We hope to receive a definite report in time for our next number.

CONNECTICUT STATE AGRICULTURAL SOCIETY.

The Second Annual Show of the Connecticut State Agricultural Society was held at Hartford.

The exhibition, considered with reference to the character of each department, was highly creditable, and calculated to elevate the reputation of the State in regard to its agricultural resources and productions.

Of the cattle, the greater part were a mixture, more or less, of the Devon with the common stock, though some were a cross of the Short-horn. The Devons made a good appearance. We saw but two Ayrshires—a cow and heifer, owned by Norman Battelle, of Norfolk. The cow was evidently a large milker, and the heifer appeared likely to equal her. Mr. B. stated that the cow had not been dry for three years, though she had bred every year. The only Jersey cows on the field were two, owned by John T. Norton, of Farmington. The looked like good ones, and a yearling heifer exhibited by him was admired as almost a model. We may mention in this connection, that John A. Taintor, of Hartford, had several Jersey cows, just imported, in a field near the show-ground. One of them—a three year old—has received the highest prizes of the Jersey Agricultural Society. She is very fine. She has been sold to Mr. Robeson, of Jamaica Plain.

Sixty-three yokes of working oxen were shown. They were brought on the course and made the circuit, following in the rear of the horses.

The oxen were generally of good size and form, well matched and well trained. The quickness and ease of their gait was in many instances remarkable. Nor were they deficient in strength, or a faculty of using it, as was proved by trying them on a heavily loaded cart. There were some good fat cattle. The horses made a good appearance. E. B. Bishop & Son, of New-Haven, exhibited three pair of mules. One pair were driven in a barouche, and were kind and active. Another pair, three years old, bred in Kentucky, were 16 hands high, and were stated to weigh 2,350 pounds. Another pair, much handsomer and stronger made, weighed 2,000 pounds.

Of sheep, Stephen Atwood, J. N. Blakeslee and Jos. Blakeslee, of Watertown, showed specimens of their Merinos, whose reputation is so widely known. L. & A. Whiting, of Torrington, had also good Merinos. We noticed some excellent Saxons, owned by John Whitman, of West Hartford. Good sheep in this class were also shown by Stanley Griswold, of Torringford. South Downs were shown by T. S. Gold, of West Cornwall, and G. W. Chadwick, of South Lyme. Cotswolds were shown by T. L. Hart, of West Cornwall, W. L. Cowles, of Farmington, Charles Tracy, of Norwich, and others.

The show of swine was quite large, and comprised some good animals of the Suffolk breed, and crosses with it. There were also a few specimens of the Essex.

The poultry display was large, and the specimens were generally good.

The department of manufactures was well filled, though it fell short of a fair representation of the ability of the State.

The horticultural department comprised a good show of apples and pears, while there was no lack of grapes. Vegetables were numerous and of good quality.

The show of butter and cheese was the largest and, so far as we could judge by the looks and *smell*, the best we have seen at any show for several years.

OHIO AGRICULTURAL COLLEGE.

THE *Ohio Agricultural College* holds its second Lecture Session at Cleveland, commencing on the first of December, and continuing twelve weeks.

FARMERS,

Whether old or young, this Institution places within your reach the means of acquiring a knowledge of all the sciences that have important relations to Agriculture. What intelligent farmer has not felt the need of such an Institution?

PLAN.

Instruction given in lectures as in Medical Colleges. Four lectures will be given daily during the whole term.

The SUBJECTS embraced in the course are

1st. *Those that relate to the land.* Geology, Mineralogy, Chemistry, etc.

2d. *Those that relate to Plants.* Botany and Vegetable Physiology, Field Crops, Orcharding, Gardening, etc.

3d. *What relates to animals.* Comparative Anatomy and Physiology; Natural History of Domestic Animals—Veterinary Medicine, Insects, etc.

4th. *What relates to labor.* Rural Architecture and Landscape Gardening, Draining, use and construction of Implements, Surveying, Farm Book-Keeping, etc., etc.

LECTURERS.

Prof. J. P. Kirtland, Prof. Jas. Dascomb, Prof. Sam'l. St. John, Prof. J. H. Fairchild, Prof. N. S. Townshend.

ADDITIONAL FACILITIES.

A Reading-Room, supplied with the principal Agricultural Periodicals, will be open to students at all hours.

TERMS.

For the entire course, - - - - - - - - $40

Board and rooms may be obtained at $2 50 per week, exclusive of fuel and lights.

This Institution is designed to be permanent, and is therefore incorporated as the Ohio Agricultural College.

For further particulars, address the Secretary of the Board.

HARVEY RICE, *President.*

THOS. BROWN, *Secretary*, Cleveland, Ohio.

HINTS ON COLOR PRINTING.

THE following may be of use to others besides printers. We find it in the *Photographic Advertiser.*

"To produce fine qualities of Colored Printing Inks, by mixing pure dry colors with varnish, the printer will do well to give heed to the following particulars:

"1. No more should be mixed at a time than will be required for the job in hand.

"2. Colored inks should be mixed upon a slate or marble slab by means of the muller, and never upon an iron or other metallic table. The table, before mixing, should be thoroughly clean, and perfectly free from the slightest soil or trace of other inks.

"3. For working colored inks the roller should not be too hard, and should possess a biting, elastic face. When change of color is required, it should be cleaned with turpentine, and a *moist* sponge passed over the face, allowing a few minutes to dry before resuming its use.

"For *bronze* printing, the roller should have a firm face, or the tenacity of the preparation may destroy it; yet it must have sufficient elasticity to deposit the preparation freely and cleanly on the type.

"4. Various shades may be produced by observing the following directions:

"*Bright Pink Ink.*—Use carmine or crimson lake.

"*Deep Scarlet.*—To carmine, add a little deep vermillion.

"*Bright Red.*—To pale vermilion, add carmine.

"*Deep Lilac.*—To cobalt blue, add a little carmine.

"*Pale Lilac.*—To carmine, add a little cobalt blue.

"*Bright Pale Blue.*—Cobalt.

"*Deep Bronze Blue.*—Chinese.

"*Green.*—To pale chrome, add Chinese blue; any shade can be obtained by increasing or diminishing either color.

"*Emerald Green.*—Mix pale chrome with a little Chinese blue, then add the emerald untill the tint is satisfactory.

"*Amber.*—To pale chrome, add a little carmine.

"*Deep Brown.*—Burnt umber, with a little scarlet lake added.

"*Pale Brown.*—Burnt sienna; a rich shade is made by adding a little lake as above.

"5. *Gold Preparation.*—Print as with ordinary ink, then put on the bronze powder with a broad camel-hair brush; allow the impressions to remain a short time for the preparation to set, then clean of the superfluous bronze; the impressions are much improved if passed through rollers."

RAILWAY INVENTIONS.

Our Canadian exchanges contain an account of two inventions for railway service, which meet the approval of persons in that section:

"Mr. I. W. Forbes, of this village, (Dunville,) has just secured the patents of some important improvements in Railroad Switches. We have been favored with an inspection of the model, and were astonished to find a machine so simple and complete in all its parts and arrangements. It is just what it purports to be; 'a self-acting and self-adjusting switch,' requires no attendance, no matter how many tracks or in what position the Switch is placed, the whole being under the control of the engineer of the passing train, who can adjust the Switch and place the train on any track he chooses without any regard to speed or fear of accident. It has been examined by some of the most prominent engineers and superintendents in the country, who unanimously

pronounced it the most perfect machine that has ever come under their notice. The adoption of this Switch will save a vast amount of expense to such Companies as adopt the improvement, as well as prevent many accidents and losses which occur daily through the neglect and carelessnes of persons employed for that purpose.

Mr. Forbes has also invented an Alarm and Register, which is so arranged that the train cannot pass without ringing a bell, giving notice of danger of any kind or notifying that all was right, at any point of the road where required.

This invention is thought by some persons well posted up in railroad statistics to be equal to the Switch in usefulness. We cannot describe it so that our readers will understand, and therefore will only say that it is intended to be attached to the engine, and is so constructed as to ring a bell near the engineer and warn him of danger on approaching stations, bridges, or curves, and would, no doubt, have saved many valuable lives the last twelve-month had it been in use. Several cases in point have occurred on our Canadian roads last year where the alarm flags were not observed by the engineer, and fatal consequences ensued which would have been prevented; had this invention been attached, it would have warned them of approaching danger."

FIRST WATER POWER IN SILK MANUFACTURING.

We suppose that the following historical facts are admitted. Nearly the first attempt at manufacturing silk in this country was made in Mansfield, Ct., and nearly the first man in the business in that town was Mr. Rodney Hanks, who deceased some years. Mr. Hanks was, also, the first person in Mansfield, or anywhere in America, who applied water power to the twisting and winding of sewing silk and twist. Upon high land which slopes towards the east his mill was built; a dam was built across a small stream of water rising on land still higher than the mill, which was turned and compelled to work its way down to the ocean. The building and the business were small, both reminding us of the names of John and Wm. Slater, and their labors in the beginnings of the manufacturing of cotten by water power. Forty years since that water power began to wind silk, guided by the ingenuity and skill of Rodney Hanks. That mill, and the newly-invented and constructed machines in it, and the mind which devised all, are gone. A new mill succeeded on the same stream, larger in proportion and used by the father and his son, Mr. Geo. R. Hanks, for the same business. Now the second mill has given place to the third, the largest of all, which is used by father and son, Geo. R. Hanks and his son Philo G. Three mills have been operated by three successive generations of men in the same family and in the same business. During all this time water power has been used in winding and twisting silk, and during all this time progress has been made in the excellence of the manufacturing and in the amount done. The skill and knowledge of the father, acquired by experiment or study, has been communicated to the son, and his again to his son, until now perhaps the world uses no better article of sewing silk and twist than comes from this celebrated factory. The name of Rodney Hanks should stand beside Slater and Wilkinson in the history of American manufacturing, as the name of his son Geo. R. may stand by the side of Martin in the annals of silk dyeing. D.

BRITANNIA-WARE—A LARGE ESTABLISHMENT.

The business of making Britannia-ware in our country has grown to great proportions, and its growth is still increasing in magnitude. Very much the largest establishment for this important business we suppose to be in West Meriden, Ct., owned and operated by the "Meriden Britannia Co." The establishment, whilst it has a oneness, may properly be divided into three more distinct factories. One is north of the depot, where steam power is used, and where the ware made is mostly cast, and for common use. Immense quantities and diverse qualities of ware are turned out of this shop, exciting the admiration of even traveled persons. Another factory is "over east" some three miles, where water power is used, and where ware is both cast and "spun up" in large quantities, and some of it admirable qualities. Up stairs and down, through many stories, are ponderous machines and multitudes of men, actively at work upon ware in some stage of its construction, from the rough ingot to the burnished vase or tankard. But the largest factory is "down in Wallingford," where more men are employed, and where all the ware is either rolled, pressed and run up, or is the product of all three processes of manufacturing. In this factory the perfection of the art of making this ware is seen. With engines and machines, newly invented and constructed, with many men of great ingenuity long applied, with ample means and facilities, an immense quantity of culinary and purely ornamental wares of astonishing excellence is thus turned out into the American market. Each factory has its manager. Silver plating and burnishing are done only at this place. The burnishing hall is large, and the large company of men engaged in it furnishes some of the finest countenances in the State. These three manufactories, under the name of "Meriden Britannia Co." are the largest establishment in this business on this continent. It has, too, its "commercial gentleman," who is constantly visiting towns and villages in all the latitudes and longitudes of our country, effecting sales to persons of taste and refinement, as well as to those who use this ware in common life. "Where does our ware go to?" asks the manufacturer, astonished at the quantity demanded. "Where does all the Britannia ware come from?" asks the million of users and admirers. We cannot say where it all comes from, but we can say, that immense quantities go from the large establishment of the Meriden Company. D.

THE ART OF PAINTING.

The following recipes, prepared by a practical painter, have been sold for a dollar. We give them to our readers taken from the *Dute West Telescope.*

1. *To Boil Oil.*—In boiling oil, never fill your kettle more than two-thirds, or it may run over and take fire. Place your kettle on the coals, simmer your oil till it will scorch a feather, when it will be fit for use.

2. *To Grind Paint.*—Put your paint on a large flat stone, with a smooth face, wet your paint with oil, and grind until fine. Be careful to grind fine, or there will be a waste of the paint, and your work will not look well.

3. *A mixture for drying paint.*—Take 8 ounces of sugar of lead, 8 ounces of red lead, 8 ounces of litharage, 4 ounces of umber; make fine, put them into a gallon of oil; simmer together one hour, then strain, pour in one pint of spirits of turpentine. Add one gill to one quart of paint to make it dry fast.

4. *Painting on Wood.*—In any kind of painting your paint must be of the proper consistency, your wood clean and smooth, and you must have a proper brush, or you cannot do good work. It is as necessary that a painter have good tools as any other mechanic, to enable him to make a good job. I have seen houses and other things spoiled with poor brushes.

5. *To Paint a house White.*—Mix 4 quarts of linseed oil, with one keg of white lead thoroughly. Commence at the top and paint six or eight boards at one through, using great care to lay the paint even and smooth. In putting on three coats, make the second the thickest, adding a little Prussian blue to the last coat to make the white more clear. Be careful not to use too much blue; and you must putty all the holes and cracks before the last coat is applied.

6. *Cream Color.*—Add finely-ground chrome yellow to white paint, (see No. 5,) a little at a time till the shade pleases you. You must add yellow every coat to have a good finish.

7. *Lead Color.*—Add finely ground lamp-black to white paint, (No. 5,) till the color suits you.

8. *Blue Paint.*—Prepare a sufficient quantity of white paint, then add finely-ground Prussian blue in oil. Add a little at a time, until the color is light or dark as you may want the shade.

9. *Black.*—In preparing black paint, grind lamp-black in oil; and as black dries slowly, you should add two ounces of litharage, to every pint of paint. Always use boiled oil for black, to give it a body.

10. *Verdigris Green.*—Wrap verdigris in cabbage or other large leaves, and place it on the hearth, over which scatter cold ashes, then cover with coals, let it roast one hour, remove, and when cold, grind in oil. This is not so apt to fade as other green, and is used for outside work.

11. *Common Green.*—This is composed of nearly equal quantities of Prussian blue and chrome yellow. It must be ground very fine in oil. The shade may be varied with white lead.

12. *Another Green.*—You may purchase patent green ready for grinding, which is beautiful if genuine; to be ground as other paint.

13. *Stone Color.*—Burn umber on an iron plate until it is of a reddish cast. No color looks better for a room if well put on.

14. *Stone Color of a beautiful Green Shade.*—Add to white paint, sufficient to make a light drab; then green enough to make a green shade.

15. *Orange Color.*—Combine white lead with chrome yellow in the proper proportion to make a bright straw color, then add red lead to tinge it to an orange.

16. *Straw Color.*—Number 15 makes a straw color by leaving out the red lead.

17. *Dark Stone Color.*—Add umber to light lead color, (see No. 7,) till the color suits.

18. *Blossom Color.*—To white paint add red or Venetian red, till the color please. Red lead is the best.

19. *Flesh Color.*—To white paint add chrome yellow enough to change its shade, then some red lead and a very small quantity of black, till the color suits.

20. *Best Copal Varnish.*—Reduce 2 lbs. of gum copal to fine powder and pour it into a copper kettle that will hold 3 or 4 gals., and melt it over a fire of charcoal. When the gum is dissolved, add one pint and a half of hot flaxseed oil, having removed the gum from off the fire, stirring smartly while adding the oil. When it is partly cool, add slowly 3 quarts of spirits of turpentine, still stirring. Care must be taken that the contents of the kettle are not too hot nor too cool while adding the turpentine; if too hot it will take fire; if too cool it will not mix well. Strain whilst warm.

21. *Carriage Varnish.*—Manage your copal as directed in No. 20. Use 5 pints of hot oil that will scorch a feather, add 1 quart of turpentine, and proceed as in No. 20. This varnish will not crack.

22. *Gum Shellac Varnish.*—Put two lbs. of Shellac gum into 2 quarts of spirits of wine, and shake occasionally; and when it is dissolved it will be fit for use. This will not stand exposure; it will dry in a few minutes, and answers well for coffins.

23. *Varnish to render Paper Transparent.*—Heat 2 gills of spirits of turpentine in an earthen vessel; when hot add 2 oz. rosin, and stir until dissolved. Varnish both sides of your paper with one coat, and when dry it will be clear enough to read through. Lay this paper on a picture and mark the outlines, then cut it out, paint through the hole. In this manner you may paint any figure you may desire.

INDUSTRIAL STATISTICS.

Vernon Depot, Ct.—*Phœnix Man'g. Co.* T. Tyler, agent; S. J. James and George Wilber, and others, foremen. Mill has 16 cards 24 inches; 1208 spindles. Make satinet warps, 1700 yards weekly.

Kellogville Mill, woolen. H. W. Talcott, agent; Warren Spaulding, A. A. Ellsworth, Palmerton, and others, foremen. Mill has 4 sets cards; 36 looms. Make satinets. Warps purchased.

Rockville, Ct.—*Springville Man'g. Co.* Alonzo Bailey, agent; Digby Wood, C. Winchester, Jr., Wm. C. Avery, foremen. Mill has 3 sets cards, 4 jacks, 28 looms. Make satinets. Warps purchased.

Florence Mills, woolen. George Kellogg, Jr., agent; Augustus Schwarz, John Dawson, Joseph Bailey, George Lee, foremen. Mill has 4 sets cards, 4 jacks, 38 looms. Make Union cassimeres. Warps cotton and purchased. Machine shop attached, having Edward Low, foreman.

New-England Co. Allen Hammond, agent; J. W. Thayer, superintendent; Vinton, Dimock, Van Tine, Buckminster, Thompson, Soules, and Simonds, foremen. Mill has 7 sets cards, 44 Crompton looms. Make fancy cassimeres. Machine shop attached, having James M. Fuller, foreman.

Saxony Mill, woolen. H. Selden, agent. Mill has 1 set cards, 10 looms. Make satinets.

Leeds Co., 1 mill, woolen. A. Talcott, agent; C. L. Clark, superintendent;

Albert R. Chapin, Francis Brown, and others, overseers. Mill has 6 sets cards, 40 looms. Make satinets. Warps purchased.

Rock Man'g. Co. George Kellogg, agent; A. C. Crosby, superintendent. Mill has 9 sets cards, 14 jacks, 70 looms. Make fancy cassimeres. Charles Metcalf, Jacob Guley, and others, foremen. *Old* mill attached to Rock, makes satinets. 24 looms.

American Mills Co., 1 mill, woolen. Thomas Darrow, Jr., agent. Has 13 sets, 25 broad and 36 narrow looms. Make fancy cassimeres.

Stone Mill, cotton. A. Hammond, agent; Wm. R. Ladd, superintendent. Mill has 14 cards 24 inches. Make satinet warps, turning out 2200 yards daily.

MERIDEN, CT.—Factory of Charles Parker. Employ 250 hands on an average. Make all kinds of Britannia and German silver ware, vices, kitchen hard ware, builders', gate, and other hinges, locks, coffee-mills, etc., etc., etc. Office, 15 Gold street, New-York.

Factory of Perkins & Parker, owners and agents. James M. Perkins, superintendent. Make 14 kinds of hammers, and a great variety of tin and iron spoons. Works have 11 fires; 2 hammer-engines; 2 trip-hammers. Employ in all 50 hands.

Factory of Edward Miller. Employs 25 hands on average, turning out $30,000 worth goods annually. Make trimmings for lamps, kettle cars, etc.

WEST MERIDEN, CT.—*Meriden Machine Co.*, 1 shop. Oliver Snow, agent. Shop has 35 lathes, and other tools in proportion. G. T. Snow, foreman. Foundry has 15 hands on average; Eugene Leonard, foreman. Forge shop has 5 fires, 2 trip-hammers; R. S. Gladwin, foreman. Make machinery, tools, and do job work. Make Prew's car-wheels, patented.

Meriden Lock Co. H. Curtis, agent; H. H. Elwell, superintendent; H. H. Booth, foreman. Employ 80 hands. Make builders' hard-ware, and spring balances.

Silver Plating Shop of Henry Blunt. Commodious laboratory. Does all kinds of plating.

Foster, Merriam & Co., 1 factory. Make furniture castors. Employ 30 men. Foundry attached has 20 hands on an average. Alanson Watrous, foreman.

Meriden Britannia Co. H. C. Wilcox, agent. Have 3 factories. Employ 150 to 175 hands. Make Britannia ware, fine-plated goods. Office, corner Gold and John streets, New-York. North factory has L. J. Curtis, superintendent; the East one has Mr. Lewis, superintendent; the third one is in Wallingford, Ct., and has Samuel Simpson, superintendent, Seth C. Babbitt, foreman, employing 60 hands; Mr. M. L. Forbes, plater. German silver department and rolling works, Robert Wallace, foreman. The works turn out great quantities of Britannia ware of a very superior quality.

Factory of Hanover Co., W. Webb, agent, turns out 400 dozens of ivory fine-teeth combs daily.

Cutlery Factory of Meriden Cutlery Co. J. Brackenridge, agent. Employ 75 hands, and make table cutlery.

Lock Shop of Amory Parker & Co. Employ 40 hands, and make builders' hard-ware. R. L. Webb, finisher. Foundry attached, Myron White, foreman. Power, steam and water, W. S. Coy, engineer.

Foundry of Julius Parker & Co. Hiram Richmond, foreman. Employs 25 hands. Make blinds, hinges, and scales.

Yalesville Mill. C. Parker & Co. Thomas Jerald, manager; Timothy White, superintendent. Employ 65 hands. Make Britannia and German silver spoons, plain and plated.

Parker Scale Co. H. B. Osgood, agent. Make platform and counter scales.

WALLINGFORD, CT.—*Fowler Man'g. Co.* Alma J. Hall, agent. Shop has 8 lathes, 4 planers, and other tools in proportion. Make machine tools, and presses from 20 to 160 tons power.

Fowler & Flagg, Jobbers. Forge shop has 3 fires and 1 hammer, George P. Munson, foreman. Power, steam.

German Silver Works of Hall, Elton & Co. Have 3 mills. Employ 150 hands. Turn out $250,000 worth goods annually. George W. Elton, plater. Make German-silver ware, plain and plated.

SOUTHINGTON, CT.—Factory of W. J. Clark & Co. Make nuts, washers, patent shaft couplings, bolts, etc. Business about $60,000 per annum.

Peck & Smith Man'g. Co. Wm. Wilcox, secretary; B. A. Neal, general agent; Wm. Jones, foreman; F. Hitchcock and Henry Way, jobbers; Julius Lewis, manager of old shop; B. Cadwell, foreman of foundry. Make machines and tools for tin-workers, spoons, 14 kinds of coffee-mills, grind-stone and pump fixtures, steelyards and notions. Employ 150 hands on average, 30 of whom are in foundry. Power is steam. James S. Young, engineer.

Miller Man'g. Co. S. W. Sessions, manager. Employ 30 hands on average. Turn out $40,000 worth annually. Make carriage bolts.

MANCHESTER, CT.—*Pacific Co.* C. G. Keeney, agent. Mill has 6 sets cards, 1200 spindles, 21 power frames. Make shirts and drawers.

SOUTH MANCHESTER, CT.—*Globe Mills.* J. Parker, agent; C. Cook, overseer. Has 8 cards, 600 spindles. Make satinets. Warps purchased.

Charter Oak Mills. D. H. Bidwell, superintendent. Mill has 2 sets machinery. Makes satinet. Warps purchased.

MIDDLETON, CT.—*Sanseer Machine Shop.* E. Lewis, agent. Has 12 lathes, and other tools. Make machinery, and do job work.

Shop of A. P. Bailey. Does silver plating and burnishing, and makes *sewing birds.* Sold by Stoors Brothers, No. 36 Vesey street, New-York.

Russell Man'g. Co. Has 4 mills. J. Brasselmann, dyer; Samuel Singleton, and others, foremen. Make suspenders, India Rubber, girth, boot, rein, and other webs. Turn out $200,000 worth goods annually.

Machine Shop of Wm. Stroud. E. Z. Parkhurst, foreman. Has 8 lathes, and other tools. Foundry attached, J. P. Davis, foreman. Has 6 hands on average. Do job work.

Factory of E. L. Wright. Employs 6 hands. Make eyelets.

Baldwin Tool Co. G. W. Fox, foreman of wood shop of 35 hands; S. W. Drown, foreman of iron shop, with 25 hands. Make carpenters' tools.

Factory of J. & W. Tidgewell. Employ 14 hands on an average. Make screw slide, mortise gages, printers' composing sticks, web-saws, etc. Turn out $12,000 worth goods annually.

Factory of Charles North. Make John North's patent truss and supports.

Britannia Factory of F. W. & O. Z. Pelton. Make superior common and plated Britannia ware.

Machine Shop of Nelson & Co. N. A. Parkhurst, foreman. Shop has 6 lathes, and other tools. Makes tools, and do job work.

PLANTSVILLE, CT.—*Plant's Man'g. Co.* A. P. Plant, president. Make all kinds of bolts for carriages and springs, car and coach screws, wrought cut nuts and washers, snaps for harnesses, geared coffee mills, etc., etc. Turn out $200,000 worth annually. Sold at 85 John street, New-York, and 70 Kilby street, Boston.

Stow Man'g. Co. S. Stow, president. Employ 60 hands on average. Make tin-workers' tools.

MILLVILLE, MASS.—*Eagle Mill*, woolen. S. B. Hall & Scott. Has 2 sets. Make satinets. Warps purchased. David Lamson and Hiram Whiting, overseers.

Millville Man'g. Co. Edward S. Hall, agent; Phillip Welden, James Pitts, Benj. Balmforth, and others, foremen. Mill has 14 sets machinery. Make superior fancy cassimeres.

SILK FACTORIES.

MANSFIELD CENTER, CT.—Silk Factory of James Leigh. Abiel S. Holt, foreman. Turn out 150 lbs. weekly, for sewing, fringes, etc.

Silk Factory of M. & G. C. Rixford. W. McFarland, foreman. Turn out 150 lbs. weekly. Make superior article of twist, for sewing machines.

Silk Factory of O. S. Chaffee. Turn out 300 lbs. weekly of sewing silk and machine twist, of all colors.

Silk Mill of Orlow Atwood. Turn out 100 lbs. daily. Orlow Atwood, foreman.

GURLEYVILLE, CT.—Silk Mill of George R. Hanks. P. G. Hanks, superintendent. Turn out 200 lbs. weekly. Make superior sewing silk of all colors. Make sadlers' silks, and silks for embroidery and sewing machines.

WILLIMANTIC, CT.—Silk Mill of Joseph Conant. Wm. Williams and D. P. Conant, foremen. Turn out 150 lbs. weekly.

SOUTH COVENTRY, CT.—Silk Mill of E. Hovey & Son. D. Philo Conant, foreman. Turn out 200 lbs. weekly, sewing, sadlers' and embroidery silk.

PROGRESS OF MECHANICAL INDUSTRY.

THE Bostonians are taking one step in advance of us all, in one direction, not perhaps in the nature of the service so much as in the attendant circumstances, and the excellence of its arrangements. A "magnificent building" has been erected, near the Revere House, at the corner of Green and Pitts streets, called the Gore Block, with a front of 80 feet and six stories in height. Its depth is 120 feet, and on Pitts street rises seven stories high, besides the basement or cellar. The building covers on the whole 7,500 feet of ground; and each story consists of a large hall, adapted either for work-shops or show-rooms, to both of which uses, we believe they are to be applied. The building is the property of Mr. Nathaniel Whiting, of Watertown; and the whole has been leased by Messrs. Edwards, Fernald & Kershaw, of this city, and will be known in future as "The Union Safe and Lock Factory." The two firms to Messrs. Edwards, Fernald & Co., of Congress street, and Messrs. Kershaw & Co., of Charlestown street, have amalgamated; and the joint concern will be conducted on the most extensive scale. Mr. Edwards, the senior partner, has been connected with the business ever since its commencement in 1838. The *ailés* of the building (or L's, as we Yankees term it) will form their workshop. They will occupy the whole of the lower story, and will have under them a variety of tenants engaged in different mechanical pursuits, to whom they will furnish motive power by a 40 horse power steam engine located in the basement. Two upper stories have been taken by Messrs. Bumstead & Co., of Washington street, for the manufactory of post-paper; and the fourth story by Messrs. Dicderman, for the manufacture of hat and other

description of bandboxes. But in the meantime the vast space and rare accommodations of the building will be availed of by the New-England Inventors' and Mechanics Mutual Association, for a great industrial or polytechnic exhibition, to commence on the 22d inst., and continue open for a fortnight. The exhibitions will consist of a display of various mechanical inventions in the market, as seen with the machinery in operation; and we understand that it is not at all unlikely that an exhibition of the sort, at once so useful, suggestive, and interesting, may assume a permament character and find fixed accommodation in the building.

ON THE FORMATION AND ANATOMY OF HORSES.

[We have extracted the following article from an English paper, because we think it much to be desired that more attention should be drawn to anatomical structure of horses. The importance of this, in relation to animal power and utility, cannot be over estimated. The article below presupposes, perhaps, too much knowledge of anatomy and physiology for many ordinary readers; but the remarks are worthy of careful investigation. They are practical as well as scientific. In this country we are deplorably deficient in the knowledge of proper means for the improvement, treatment, and care of our horses, and domestic animals generally. In New-York—in Broadway alone—is daily seen an amount of wasted animal powers, and of thoughtless but excessive cruelty, to that noblest and most useful of creatures, the horse, which loudly cries for both thought and remedy. Crippling, fallen, and even dying horses, are ordinary spectacles on that leading thoroughfare. We are fully satisfied that most disorders of the feet are caused by unskilled shoeing and from badly-formed shoes. There are, and there should be found, the means of amendment for all this. Schools for training the shoeing-smith, in a competent knowledge of an operation which ought to be altogether separated from common blacksmithing, are much wanted. The means of scientific training in the veterinary art generally, are urgently demanded. We are utterly behind the times in relation to objects and subjects of so great import as those of veterinary science. To all communities, and in a greater degree to such as are largely agricultural or pastural, it is a science of the highest domestic and national importance. Boston, we perceive, has the great honor of having moved in this matter, by the organization there of a veterinary college. Surely New-York presents a yet ampler field, and no less calls for a similar institution.—Ed.]

Length of Chest.—Eighteen dorsal vertebræ and their intervening ligamentous pads stretch along the roof of the chest in a continuous nearly straight line, and determine its length, which is proportionately greater in horses than in most other animals. The floor is remarkably short, as will be seen by the bony part of the sternum which forms its limit. The diaphragm is inserted into the posterior end of the sternum below, and, following the lower end of the false ribs, it inclines backward to reach the last dorsal vertebræ above. This shortness of chest below, and in that part too where it is narrowest from side to side, reduces the volume of the lungs in this region. But, on the other hand, the inclination of the diaphragm backwards, and a great extent of dorsal region, add strength to the lungs where

they are already widest, in consequence of the arching ribs. The horse's chest, indeed, is remarkable for capacity above. Now, it must be observed, that there is wonderful significance in this. The chest is longest where the ribs have greatest range of motion, and where such motion will not interfere with progression. In other words, the chest is most conspicuous (it is longest and widest) in those dimensions where the moveable framework composing its walls can most efficiently increase and diminish its size during active breathing. Again the chest is smallest (it is narrowest and shortest) where its outer framework becomes connected with the forelegs, and possesses least mobility. There is still another view of this interesting matter; the chest is increased in length above, at the expense of the abdomen, in order to avoid so much the more space for those regions of lung which are most active in respiration; but the abdomen is increased below at the expense of the chest, because this region contains lung of least respiratory capacity. It is also worthy of remark, that in horses formed especially for speed, the chest is proportionally more extended along its roof, and the diagram is more oblique, than in horses with heavy carcasses, and adapted for slow draught only. This line of back-bones, however, forming as it does a sort of joined beam or suspension bridge, becomes weakened if it be too long from end to end. Hence, where vast solidity, or great weight-bearing powers are needed, as in the cart-horse, a short back and round deep carcase are desirable. On the other hand, where great flexibility is required, in order that the race-horse, for instance, may bring his hind-legs far forward to secure great length of stride and propulsive power, the back must be longer. In most animals specially adapted for mere speed, the back is moderately long, and the legs (especially the hind-legs) also; these conformations are well shown in the hare and greyhound. In leaping animals, again, the back is somewhat shorter; so in a hunter intended to carry a heavy man, the back should be shorter than in a race-horse, in order to secure the needful strength. A harness horse may have a longer back than a hunter, because, if combined with good well-placed limbs, and a deep chest, it gives him freedom and length of step.

Of the Withers.—The upper external undulating "line of the back" is formed by the ends of certain appendages (dorsal spines) attached to the back-bones. The first twelve or thirteen of these incline slightly backward; the remaining six stand nearly unright. Their length gradually increases from the first to the fifth; and the third to the sixth, inclusive, are so decidedly longer than the others, that they form a very prominent eminence, which rises between and above the shoulder-blades. This elevation is called "the withers." The summits of the bones of the withers give extensive attachment to a powerful elastic double ligament, which suspends the head and neck. Each side of the withers affords insertion to muscles employed in raising the fore parts of the body upon the hind, or the hind upon the fore; they are specially concerned, too, in giving origin to muscles which raise and turn the head and neck. When the withers are low, they consequently afford so much the less space for these important fleshy masses. In the horse, the withers rise more abruptly above the general plane of the back than in most other animals, and well-raised withers with a properly carried head and neck often go together. Well-raised withers, then, constitute a "good point;" this point, however, may be more essential in some horses than in others. It is quite possible, for instance, that a racer with low withers may possess great speed, and neither hares nor greyhounds possess high withers. The famous Eclipse is said to have been lower in this part than at the rump. A

racer at full speed holds his head *extended and low;* he does not require to raise the fore part of his body greatly from the ground: but it is requisite that he should cover, or be propelled over, a great space at every stride. This propelling power resides most in the hind parts, so that if muscular development be good in the loins, quarters, and thighs, mere lowness of withers is no great disadvantage in race-horses. In a hunter, again, the head ought to be carried higher, so that the fore-legs may be freely raised, and in order that he may see or "measure his leap," as he phrase runs. A horse carrying his head low, and having low withers, must step low, because the muscles raising and advancing the fore-leg act at a disadvantage. One great point in securing a good upward leap over a fence, consists in raising or holding the head and neck well up; this is accomplished by muscles acting from the dorsal spines upon the neck and head; coincident with this action, the fore-legs are raised by muscles acting upon them from above, and the fore part of the body is elevated about the same time by muscles operating on the withers from behind. The withers, then, are levers as well as points of purchase, and in proportion to their length, such is the power of muscles acting from and upon them. Again, when the withers are well raised and prolonged backward, the neck usually rises well from the chest, increased depth and obliquity are given to the shoulder, the fore-legs stand well forward in advance of the center of gravity, and greater security of action is thereby conferred. If a deep chest is added to this confirmation, the saddle will lie in the right place, and remain there almost without girths; but no girthing in the world will secure a saddle where the withers are low, and the breast shallow before.

Position of the Fore-legs.—In horses used for the saddle, and possessing a desirable conformation of this point, a perpendicular line descending from the highest point of the withers to the ground, will fall several inches behind the elbow point, thus showing that the fore-legs are well advanced. In horses used for draught, this line will often fall along the outside center of the limb, or even still further forward; this indicates an upright shoulder, which in heavy horses may coëxist with high withers. Such a formation is advantageous where great weight requires to be thrown into the collar; it shows that the fore-legs are placed backwards and near the center of gravity. Where the fore-legs stands too far under the body, we can often see the point of the breast-bone projecting forward, or advancing before the retreating shoulder. Although, however, such formation may be advantageous for heavy draught-horses, and may be tolerated, or even preferred, in coach and omnibus horses, where powers of draught are almost as important as powers of speed, yet a light harness horse, carriage horse, and hunter, should have retreating high withers; the line of which we have spoken should fall far behind the fore-leg, the point of the breast should be concealed by advanced shoulder points, in order to insure the speed, freedom, elevation of action, and forward-reaching movement of limb, which are so essential to the practical value of these horses.

Of the Back.—Behind the withers, the back is mostly slightly depressed so that the middle of this region may sometimes be an inch or two lower, than the rump. In a well-formed back, however, the line from the posterior base of the withers to the rump should be almost straight. A slight depression involves no perceptible weakness, and affords a convenient place for the saddle to rest upon. A great or palpable hollow, however, constituting what

is called a "saddle back," shows that the vertebral bodies are bent greatly downward, and form a weaker line than a tight well-traced chain or suspension bridge. Accompanying this form, too, we usually find a deficiency of muscle on the back and loins, and the sides, although possibly round, are but shallow. In some horses, again, the dorsal vertebræ form a line which is concave below and convex above, so that their spines project too far upward, and render the back round or "roached," like that of a fish. Such backs are often very strong, because of being arched; still they are highly unpleasant to ride upon, and are most unsightly under harness. In heavy draught-horses, and in large carriage horses, the line from behind the withers to the rump can be hardly too straight, for such a back is strongest in bone and flesh; if the ribs joining such a back are long and well-arched, we usually have muscular loins, and a chest conveying the very expression of great strength and endurance combined. In saddle horses (hunters, perhaps, especially) a slight hallow behind well-raised withers is often preferred by some, for it gives the rider an easier and more secure seat, and does not sensibly impair the strength of this region, if the ribs are well arched. A hollow-backed, flat-sided horse is almost useless; he seldom looks well, rarely goes well behind, and is totally unadapted for holding against a heavy load when going down hill.

Variety of Carriage.—In horses which are used as hunters, hacks, or for light harness purposes generally, it is obviously important that the head and neck should be light, and carried well elevated from deep slanting shoulders and well-raised withers; by means of this formation, and this only, the center of gravity is thrown sufficiently behind the fore-legs to render their step light and secure. On the other hand, in cart, dray, or even in heavy race and omnibus horses, the shoulder should be more upright, but still very deep. This formation throws the fore-legs further backward, or under the body, and of course more directly below the center of gravity. In the act of draught, such horses instinctively depress, and continually oscillate the head and neck; by means of these adaptations, the line of gravity is brought in front of each fore-foot alternately placed upon the ground, and an available weight is thrown into the collar. How truly absurd, then, is the habit of reining up a draught-horse's head, and yet compelling him to draw a heavy weight. This practice of tightly reining heavy horses may gratify the morbid taste of those who ever seek to destroy such useful provisions of nature as they cannot learn to value. The custom, however, is too expensive and too barbarous to gain sanction in this part of the kingdom, because you know that heavy draught work requires not only a certain massiveness of trunk and limb, but is rendered easier of performance when trunk and limbs can act in concert with the unrestrained movements of a somewhat depressed head and neck. We see, then, that a light, well-raised head, an elevated, neatly turned neck, and deep slanting shoulder, are points of beauty as well as utility in horses required for leaping and rapid action; but a heavier (yet not a coarse, clumsy) head more humbly carried, and a stronger neck rising from a very deep but far more upright shoulder, have also their utility in horses required for heavy slow draught alone.—*English Paper.*

"Plough deep while sluggards sleep, and you shall have corn to sell and to keep."

FAIR OF THE AMERICAN INSTITUTE.

THIS exhibition is far superior to any previous one that we have seen. In the number of articles on exhibition, and the variety, and in the extent of the department of machinery it is much superior to those of former years. The statuary exhibited at the World's Fair, much of which still is there, and pictures, of which quite a number still remain in the gallery, add very essentially to its interest. The central fountain is now arranged in much better taste than at any previous time. A large part of the building is occupied with articles on exhibition.

We cannot give anything like a general view of this show, but among the many things of interest will specify the following:

STORM'S CLOUD ENGINE.

This engine deserves the attention of engineers. A new principle has been introduced into it, which is the combination of cold atmospheric air with the steam in the steam chest. The result of this is a cloud or vapor, and hence its name. The effect of this combination is regarded in different ways by practical engineers, but the calculations of all seem to be a little confused, and their prophecied results to be contradicted by facts. It has been tested by several engineers, and among others by Mr. Allen of the Novelty Works. In one of his experiments, steam alone gave 170 revolutions to a pound of coal, and with the cloud combination it exceeded 250 revolutions. All experiments prove that there is value in the combination, or, in the words of Mr. Allen, "The increase of pressure is proved beyond a doubt, and even is over 50 per cent." Hereafter we may give a detailed account of this engine, with more specific statements of the advantage derived from the use of cold air in combination with the steam.

SUCTION AND FORCE PUMP.

Messrs. L. P. and N. F. Dodge have on exhibition a capital pump, of which they are the proprietors. The piston and valves are metallic, require no packing, and have comparatively little friction. The pump is horizontal. The water enters the cylinder, upon its lower side, at each end alternately, passes through the piston-heads, and is discharged through the round air-vessel in the center of the pump. These pistons are each furnished with a metallic valve, connected in such a manner that both must operate simultaneously, one valve opening at the precise moment the other closes, so that any delay on the part of one is immediately overcome by the other; consequently these pumps may be run at higher speed than pumps generally, as the back action of the water, (water-ramming,) does not prevent the parts from performing their duty at the proper moment. The pump may have a perpendicular position by modifying the lever power. It works with remarkable facility. We may illustrate this pump hereafter with a diagram. It is also adapted to the form of a fire engine. Four men can throw a five-eight jet a hundred feet high.

FISHER'S STEAM CARRIAGE.

THE merits of this carriage have been frequently discussed in our pages, and we propose to say still more of it. Visitors to the Palace will do well to examine it. Capitalists may find it a good investment; mechanics will find

it a capital invention, and all lovers of the useful will be well paid for giving it a thorough examination. We have an article prepared in relation to it which will appear in this or our next issue.

PLYMTON'S SECRETARY BEDSTEAD.

THIS curious and most ingenious piece of furniture, now at the Fair of the American Institute, to begin with, we commend to every real old bachelor, of every age and condition, and secondly, to all who would make one room practically count as two; and thirdly, to all who would make their bedrooms look as if it were a mere library or common sitting-room; and fourthly, to all who are liable to occasions in which the whole house, except the kitchen, which should always be kept sacred to its own uses, must be turned into a bedroom. To this preamble we annex the following description:

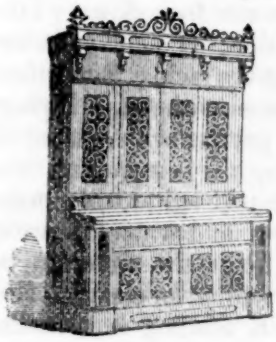


FIG. 1.

Fig. 1 represents the mechanism in the form of a handsome secretary. It is, in fact, furnished with a convenient leaf for writing, and a drawer with the necessary implements for such use.

When it is to be changed into a bed, it is turned down with perfect ease, upon a swivel, the necessary supports (legs) making their appearance in due season. The sides of the secretary form the side of the bedstead.

The front of the secretary must, however, be first removed, and when opened, discloses a well-contrived toilet-table and wash-stand, with its furniture in its own place. When the main part is turned down horizontally, the back becomes the upper part, the bed and bedding are exposed to view, and are ready to be put in order by the chambermaid. These *appurtenances* were confined in their places in part by the head and foot board and by a cord, and in part by an iron rod, which is surmounted with an ornamented ring or circle, which is intended as a support to a very handsome mosquito net. The rod is readily set into its socket. The drapery is then easily arranged. This may be a mere mosquito net, or it may be the most elegant lace curtain, presenting the precise appearance of such furniture as shown when it is suspended from a central point over the bed.

FIG. 2.

Fig. 2 represents the toilet-table and bedstead as formed by the arrangement already described. The toilet-table stands upon castors, independent of the other parts of the mechanism, and is complete in itself.

The bedstead represents a perfect panelled French bedstead. The bed is a well-made spiral spring bedbottom, covered with a hair mattress or any other kind of bed that may be desired.

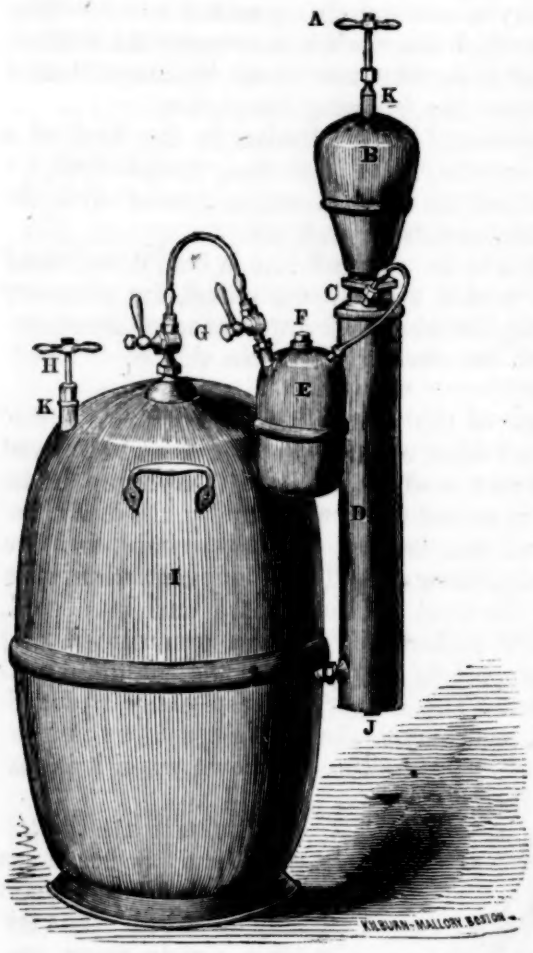
The reverse process, by which it is transformed into a secretary, is as

readily performed as the other, and neither will occupy more than a single minute.

A patent has been obtained for this invention in England and in France, as well as in this country, and it cannot fail to be a very lucrative estate. The prices vary from $50 to $200. Those of $100 are very handsome. The cheaper ones are of a plainer style. We shall be very happy to receive orders for these, and do not hesitate to recommend them.

The sales-room is at 62 White street.

NICHOLS'S PATENT IMPROVED COMBINATION FOUNTAIN.



DESCRIPTION OF INSTRUMENT.

A valve rod, for letting down soda; B soda chamber, for holding soda; C valve coupling, prevents the water from flowing into acid cylinder; D acid cylinder, for holding the acid; E purifier, cools and washes the gas; F plug, for filling purifier with water; G stop cocks, for controlling the flow of gas; H agitator, for mixing the gas and water; I water chamber, holds the water to be charged; J plug, for cleaning acid cylinder; K stuffing box, makes the agitator rod tight; K ditto, makes the valve rod tight.

This is a new form of soda-water apparatus, differing from all others in very important particulars, and designed for the benefit of every dealer in true mineral water. It produces, in less than 30 minutes, without the use of wheels, force pumps, or any complicated or expensive machinery, soda-water, or water charged with pure carbonic acid gas, (made entirely from bi carbonate of soda,) at a pressure of 200 lb. and upwards to the square inch; and this is done easily without any fear of explosion, an accurate guage and safety valve guarding completely against danger.

The process of charging is very simple; the rod A is pressed down, which dislodges a portion of the soda in chamber B; upon the acid in cylinder D a quantity of gas is instantly evolved which is forced by its own pressure through the purifier E, thence into the water chamber I. This process is repeated till the guage indicates the pressure required. To impregnate the water thoroughly with the gas, the agitator H is admirably adapted, operating like an old-fashioned churn; it easily and effectually secures this great desideratum. The soda chamber B, the cylinder D, and the purifier E, constitute the generator. After the fountain is charged this generator can be

detached and removed from the fountain. By removing the plug J the cylinder is quickly cleaned.

The inside of these fountains are lined with tin, and all the pipes are also of block tin. With fair usage, these instruments must continue perfect for many years. They are made of various sizes, and we understand the prices are very reasonable.

The instrument on exhibition at the Fair of the American Institute is a beautiful piece of mechanism. F. B. Nichols, 77 Pine street, is announced as agent for this city.

PORTABLE GAS GENERATORS.

Of these there are several in the exhibition. One of these is the "Universal Portable Gas Generator," R. Aubin's patent. Another is the "Maryland Portable Gas Co.'s Apparatus." The latter has been exhibited at many fairs in different parts of the country. A third is the famous "Benzole Gaslight." Whose patent this is we do not now recollect, but believe that it is not the machinery of the American Gas Co. of which we have written so often.

SHELLY'S IMPROVED CARRIAGE WHEEL,

Is formed with two felloes, one about half way from the hub to the second. The benefit of this is by diminishing the number of spokes within the inner felloe, to secure a stronger hub. Only half the spokes are continued beyond the inner rim. The cost is said not to exceed that of the common wheel.

ROCK DRILL.

There is a model of a very good drill, worked by crank power by one or two men, by which rocks may be drilled at the rate of three or four inches per minute. It drills in different directions, and is readily converted into a kind of hand-cart. It is a very ingenious mechanism.

HAND PRINTING PRESS.

One of the smallest machines on exhibition, prints cards, etc., quite expeditiously, while the apparatus costs only from five to eight dollars. The "form" is cast upon a lever, near the end of which is a hinge joint, and, after inking, the process consists in forcibly pressing down this lever upon a small bed beneath.

SEWING MACHINES

Of all forms are found in this exhibition. The latest we have noticed is a musical one, in which the operator plays a melodeon, and, presto, her sewing is all done at the close of the performance. This is one of young America's newest contrivances.

But this precocious young man has outdone himself in another ingenious and useful piece of mechanism. It is called

WRIGHT'S PATENT SECTIONAL SPRING BED BOTTOM.

This is a simple and convenient form of using the spiral spring, which is applied to beds and seats in various ways, and all with good results. Each style has its own peculiar characteristic, and some find ready sales at comparatively high prices. This form is cheap, costing only from five to ten dollars, and is used in connection with a mattress placed upon it, as are nearly all the other kinds of spring-beds. It does not easily get out of repair, and if any spring becomes defective in its action it can be repaired at once, without any difficulty.

CARPENTER'S PATENT CONVERTIBLE UNION CHAIR.

In its first form it is a small cradle on which a very young infant may

rest on a pillow quietly and be rocked to sleep. In a second it is transformed into a very small chair, with bars across the child's lap, in which it can be, placed without danger of falling out. A third transformation, we believe is a larger form of rocking-chair, and a fourth is a "high chair," in which the child may sit at a table. Segars, etc., must be furnished by its attendants.

ENAMELED FURNITURE.

Our cabinet makers have acquired the art, within a few years, of manufacturing enameled furniture of elegant proportions and with a most beautiful surface. Mr. S. H. Warwick and Messrs. Briggs & Vickar, both of this city, exhibit in the Palace some very fine specimens of this sort.

KING'S RAILWAY WASHING MACHINE.

This important family drudge is not so recent as some other inventions we have described; but it seems, like old wine, to be improved by age. We commend the attention of all housewives to this labor-saving machine, which seems far more careful of the delicate fabrics committed to it than is often witnessed in those other machines from the Emerald Isle.

Now that we are upon these domestic affairs, we will refer to another stall in the gallery of the Palace, where Messrs. Cram & Son, of Boston, exhibit some very compact and comprehensive forms of "horses," or

CLOTHES DRYERS, FOLDING CHAIRS, ETC.

The latter may be carried out upon the common when one goes to see fireworks and "such like." They have also quite a variety of furniture of great convenience and utility.

PATENT REVOLVING-HAMMER PISTOL.

THIS pistol, manufactured by the Robbins and Lawrence Company, Windsor, Vt., is esteemed particularly for its very extraordinary shooting qualities, as well as for its simplicity andc ompactness of construction. The four-inch barrel is very effective at the distance of 100 yards, and in skillful hands is entirely reliable for accuracy at 50 yards and over. The three-inch barrel, though not so likely to be accurate at a long distance, projects the ball with force almost equal to the larger barrel, and at ordinary pistol distance is fully as reliable. The barrels of both sizes are rifled with great exactness; and the ball is driven through them precisely on the same principle, and with the same result as with the famous Minie ball—consequently, greater penetration of the ball, combined with accuracy, is attained, than with any other pistol carrying an equal charge. It is strong and durable, with no liability of failure in any of its parts, unless by reason of defect in the steel or iron which cannot always be detected until used. It has no liability to accidental discharge by falling or catching the hammer. The hammer and lockwork being entirely concealed within the handle of the pistol, it can only be discharged by cocking it properly. It can be capped, loaded, and fired, with greater rapidity than any other—and in fact can be safely said to have no equal in any of its points of excellence.

Price of both sizes, $12 each, put up in neat boxes with wrench and moulds.

Orders from any part of the country filled by the Manufacturers, at Windsor, Vermont.

UNITED STATES AGRICULTURAL SOCIETY.

THIRD EXHIBITION.

Our readers are apprized of the occurrence of this great exhibition at Boston, commencing on the 23d Oct., and continuing for four days. We can only give an introductory account of its transactions, which we shall resume with our next issue.

The grounds selected for the show are on Harrison avenue, and contain about thirty acres.

They are entered through a fine gateway, of imposing appearance, designed by Mr. John R. Hall, architect to the society. Two towers, each forty feet in height, support a fine arch, that spans the entire width of the street. These towers contain the treasurer's office, with twelve windows upon the Avenue front, for the sale of tickets. Upon their summits floats the American ensign.

Entering the field, we are treated to the novel and excellent feature of a vast area *graded to a perfect level.* The field exhibits the verdure of spring, being covered with oats which were sown on the land, serving not only an ornamental purpose, but a very useful one, in keeping down the dust that the myriads of feet and hoofs would otherwise create.

Nearly in the center of the field is a fine track for the trial of horses, describing in its elliptical circuit an exact half mile. Midway on "the home stretch," a pagoda-like tower, of beautiful proportions, rises to a height of seventy feet; and above it floats the American flag, thirty feet in length by twenty feet in width. The first story of the tower is designed as a gathering ground for the officers of the society, marshals and invited guests; the second story is for the accommodation of the judges.

On the west side of the track, seats for six thousand spectators are erected, in the most secure manner.

In the center of the ellipse is the mammoth tent, capable of seating three thousand persons at the grand agricultural banquet, to be held on the afternoon of Friday, 26th, when several distinguished gentlemen will address the assembled guests. To the north of this, a little in advance, is the President's tent, where the guests of the society are received and introduced to its presiding officer.

The Committee of Reception consists of Hon. J. V. C. Smith, Mayor of Boston; His Honor Lieut. Gov. Brown; George M. Atwater, Esq., of Springfield; Charles L. Flint, Esq., (Secretary Massachusetts board of Agriculture); with others.

Still further north is another beautiful tent for a Ladies' Saloon, where ices and other refreshments may be obtained. Connected with this saloon is a Withdrawing Room, for more private uses.

A tent has been specially set apart for the reporters, and every facility will be afforded them to obtain and transmit information.

The Society's Committee Rooms are established in the handsome wooden building on the northeast corner. Here are arranged tables with stationery and other conveniences for the Committee.

More than three thousand feet of stalls are covered with a canvas roof, with festooned curtains in front. Additional accommodations are arranged for sheep and swine, at the south end; and for neat stock at the opposite

extremity. At these points, several ranges of tents, about one hundred feet long by twenty feet wide, are stretched, affording adequate protection from sun and cold to the animals, and presenting a picturesque appearance to the observer.

The field-management of the Exhibition is entrusted to Maj. Gen. Tyler, Chief Marshal, with twenty assistants; who appear in an appropriate and becoming uniform. In addition there is a strong force of police, under the immediate direction of the chief or assistant chief.

Very numerous entries of stock, in the various departments, have been made; and some of the most noted horses in America, and very many of the finest specimens of neat kine both home-bred and imported are on exhibition.

HORTICULTURAL.

To obtain Dwarf Blooming Plants of Nerium Splendens.—The following mode of cultivating the Oleander appeared in Harrison's *Floricultural Cabinet* for 1846:

"In April I looked over my old plants and discovered those shoots which had a leading bud of blossom; I then took a small garden pot, knocked the bottom out, and carefully drew the shoot through at about six inches below its crown; I notched the stem like a carnation, putting a bit of soil to keep the tongue open. I then tied a piece of sheet lead under the pot, to enable me to fill it with fine rich soil. I pressed the soil tight and placed the pot in a hot-house for a month; the layers rooted speedily, I then cut it off the parent, repotted into a larger pot, kept it in the hot-house a fortnight longer, which was then the first week in June, and a most beautiful bloom succeeded upon all the plants and they not more than a foot high. A free supply of water was given whilst striking root a well as subsequently."

THE OSAGE ORANGE FOR HEDGES.

Mr. H. P. Byram, the editor of the Louisville *Journal*, writes to that paper from Dayton, Ohio:

"In the vicinity of this city I saw some of the most perfect specimens of the Osage Orange that I have ever before met with—more perfect, indeed, than I supposed nature could produce, even with all the aid that art and industry could lend her. The plants seem to withstand the blighting effects of this unusually dry season, better than any other species of vegetation. The leaves still present the most rich glossy green that characterizes this plant in our most favorable seasons.

"From a somewhat extensive acquaintance with the character of the Osage Orange plant, I have often pronounced it the hedge plant of America, but I had no idea of the degree of perfection to which I find it susceptible of being trained in the hedge. The oldest of the hedges here now is about four years. It is four feet high, and three feet broad at the base, and as dense, compact and uniform from the ground to the top, as if it had been moulded

by hand from some plastic material. My attendant remarked that it was "so close at the bottom that a snake could not find its way through it. There were several other specimens in the same vicinity, from one to two years old, all presenting the same beautiful appearance.

"The great and only secret in producing this living American prairie fence is, *clean culture for four years, and a relentless unsparing shearing*, from the period of setting the plants to the end of four years, and then to maintain it in its proper form by semi-annual clippings."

NEW ROSE—ISABELLA GREY.—The Yellow Rose of which blooms were shown at a meeting of the Pennsylvania Horticultural Society, under this name, is certainly the finest of the roses of that color which have been raised in this country. It is a Noisette of fine shape, tea-scented, and the color is deeper than that of Chromatilla, Solfature or Augusta. Having been presented by Mr. Jas. Richie, of this city, with several blooms of it, we had an opportunity of seeing it by daylight, when it appeared of course to greater advantage. It is, we repeat, by far the best yellow rose out.—*The Florist.*

NUTMEG TREE IN CALIFORNIA.

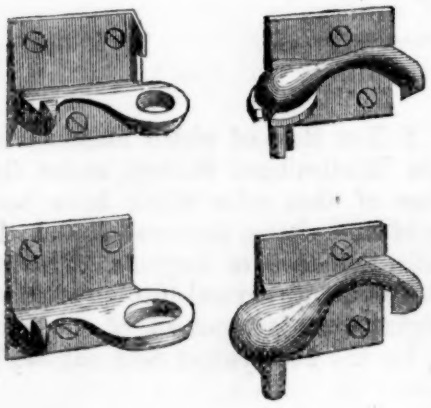
THE Calavaras *Chronicle* gives the following description of a Nutmeg Tree recently discovered in that section of the country, and which is said to be very abundant. It says:

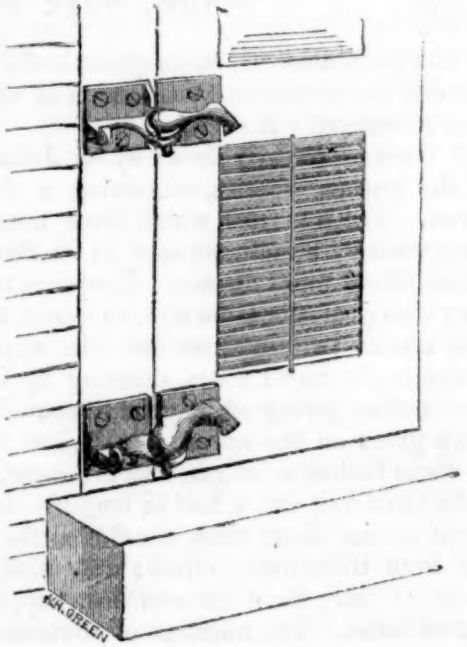
"We were recently shown by Mr. John Hanson, a branch taken from a tree of the nutmeg species, containing a cluster of the fruit to the number of seven. The tree from which these nuts were taken, was discovered a short time since by a man engaged in working on the Mokelumne Hill flume, about fifteen miles distant. There are two trees standing near to each other, very nearly of the same size, supposed to be about thirty feet in height, and the trunks two in diameter. In appearance they closely resemble trees found in the torrid zones, shooting up in a single stem a distance of twenty feet before giving off any branches. The leaves are of the most beautiful deep green on the upper side, lighter on the under, are narrow, about two or three inches in length, and are arranged alternately upon foot-stalks from a foot to a foot and a half in length. It is a difficult matter to determine by what chance these trees should, in the first place, have found their way so far from their native clime; and most strange it is how they survive the frosts of this; for it has ever been supposed that they were indigenous to the torrid zones. The nutmegs of commerce are procured from the East India Islands, principally from the Molucca group. When mature, they are subjected to a process of curation, whereby they are deprived of the power of germinating. As they are easily propagated from the seed, persons having gardens or grounds would be well rewarded by procuring the fruit as soon as it is matured, and treating it in the same manner as the peach, or any other of the nursery seeds."

PATENT BLIND HINGE AND FASTENING.

The above cut is a representation of a patent hinge for window blinds, invented by Mr. Charles Packer, of Meriden, Ct., and patented by him in letters dated April 13, 1852. The fastenings are made of cast iron; and, as seen in the cuts, they are designed to be fastened to the window frame and the house by means of common screws. In fig. 1 we have a view of the parts of the hinges as seen separately, and a glance will show how the parts come together when put to use. In the upper left hand picture of the cut a small hook is seen projecting from the iron hinge, into which a hook on the part seen on the right hand upper picture fastens itself. The same hooks are seen in the lower pictures, one reaching up and one down, each suited to hook itself into the other. When the blind is thrown open these hooks clasp each other, and no wind can unfasten the blind. But how is the blind unfastened? By the hand, which grasps the nearest corner of the blind, and, lifting it one-fourth of an inch, unclasps the hooks and brings the blind forward. But won't that hand lift the blind off the hinges? This danger is obviated by a small guard, seen in the upper right hand corner of the upper left hand picture. Fig. 2 represents the blind closed. This hinge and fastening seem very simple and complete; and they are warranted not to break in the strongest wind. The lower edge of each half of the hinge must be perfectly level, and in a straight line. The oblong eye, which belongs to the lower hinge, is furnished with a angular side, to aid the hand in lifting the blind when the blind is to be unfastened and drawn together. The hinges are so applied as to have the blind rest upon the upper and lower hinges.

FIG 1.





The time used in hanging blinds with these hinges is seventy-five per cent. less than is consumed when other hinges are used; and it is supposed that no hand can be so unskillful as to fail to close the blind when desired. Though not a very costly adjunct to human comfort, yet a blind hinge, simple and safe, meeting the wants of the householder, may add greatly to it. We hope that the value of this new hinge may be thoroughly tested by the public.

CAR SASH FASTENER.

FIG. 1.

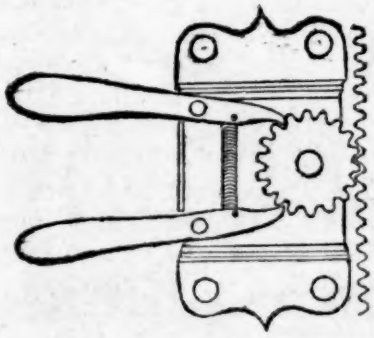
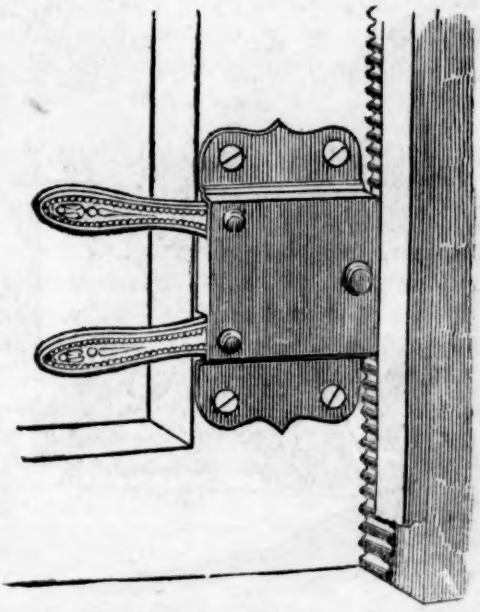
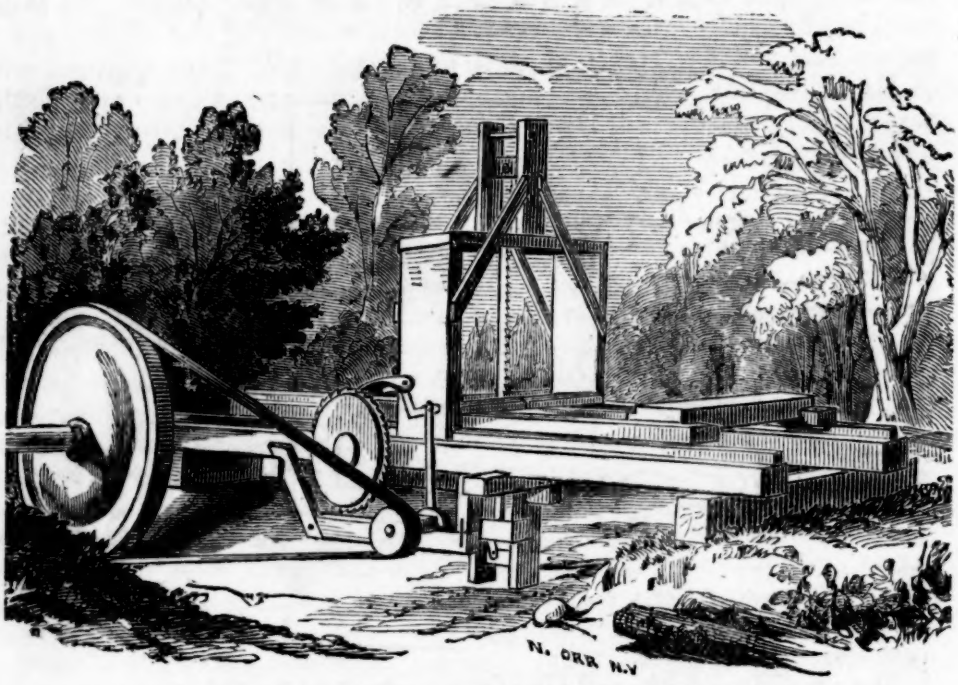


FIG. 2.



In the above cuts are two views of a new Car Window Fastener, invented and constructed by Mr. Norman C. Stiles, of Meridan, Ct., who has applied for a patent for the same, and who has now the pleasure of knowing that his plan to open and close car windows is gaining much popularity. Fig. 2 is a front view of the fastening, as seen upon the sash by the traveler. Fig. 1 is a view of the internal arrangements of the parts of the fastener. It is seen that a cog-wheel, some six-eighths of an inch in diameter, is so situated as to play into a rack in the side of the window. The cogs are long and the rack is made of brass. The wheel and the two bars fixed to act as a stop motion to the wheel, are about one-eighth inch in thickness. The bars are levers moving on fulcrums, and having the points, which intersect the cogs, drawn together by a coiled wire spring. If the thumb be applied to the outer end of the lower bar to elevate the window, the power removes the fastening and the window is elevated. If the finger is applied to the upper bar to close the window, then the fastening is removed and the window closes. One great excellence of the improvement is, that the window can, by this apparatus, be kept open at any altitude. Another is, that any person's instinct leads him to use the fastening in just exactly the correct way. No man can be found so awkward as to disarrange the apparatus, or fail to get the window open to suit him. The cost of the fastenings is about two dollars per dozen, and any information may be obtained respecting them by application to the inventor. Even a cursory examination of the engraving will show the reader that he never saw a more simple, intelligible, and convenient car-window-fastening on any window he ever attempted to open or shut.

"Pride is as loud a beggar as want, and a great deal more saucy."



FRAZEE'S PATENT PORTABLE SAW-MILL.

In new settlements a saw-mill is of the greatest importance, and wherever mill sites are to be found the value of the surrounding territory is greatly enhanced in value. Such structures, generally, are of the rudest description, and intended only as a temporary affair, to be replaced, under more favorable circumstances, with a something more efficient and more expensive.

But invention genius has not overlooked these necessities, and machinery has lately been constructed which renders it only needful to possess a few hundred dollars capital, to enable any party at once to enter a forest and commence the manufacture of lumber on the most extended scale, with an apparatus of sufficient portability to be readily removed from place to place; in fact, reversing the order of things—instead of carrying the logs to the mill, to bring the mill to the logs.

These characteristics to which we allude are contained in a saw-mill we have lately examined,* which, for cheapness, efficiency, simplicity and durability, comes the nearest to perfection of any similar contrivance that has yet come under our notice; and we feel that, in calling general attention to its superior qualities, we are performing an act that will result in almost universal benefit. This saw-mill was invented by Benjamin Frazee, Esq., of this city, formerly of Durhamville, in this State, for which he received letters patent, dated October the 18th, 1853.

Most persons, in trying to improve the structure of the saw-mill, have spent their time, money, and inventive genius, in endeavoring to study out something new for mill-dogs, saw-sets, water-wheel, etc., etc.; but it appears to

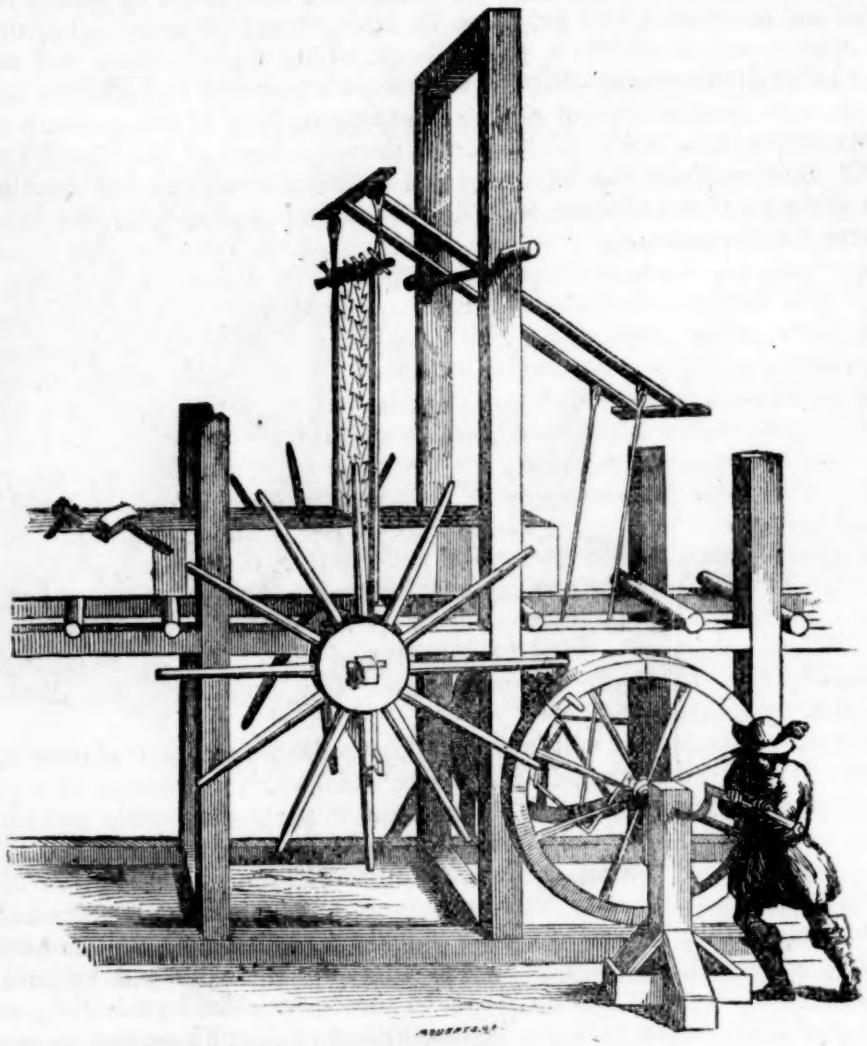
*One of these mills is in operation in this city and attracts much attention. Any information in regard to it may be obtained by addressing or calling upon Messrs. J. M. Emerson & Co., 1 Spruce street.

have never occurred to them that the frame-work itself could be greatly simplified and cheapened, and yet leave its strength and efficiency unimpaired. The idea never struck them, that a large, strong frame, pitman and sash, could be wholly dispensed with, and still secure a powerful and effective mill; yet we have abundant proof of these important facts, in the specimen mill of Mr. Frazee, now before us. Some of the advantages of Mr. Frazee's mill are peculiarly striking. It is constructed with 8 pieces of timber, from 5 to 8 feet long; 4 pieces of plank, from 4 to 6 feet long, and about 1,500 pounds of iron, besides two long bed-pieces, a carriage, some small wooden fixtures, pulleys, etc., the whole weighing about 2000 pounds, and, as will be readily perceived, the whole can be loaded and transported on a common farm wagon. The motive power usually sold with it, is a simply constructed, yet efficient and durable, portable steam-engine, of about 8 horse-power, which, together with the boiler, weighs about 3,500 pounds, making, with the mill, the whole establishment weigh 5,500 pounds, which with three ox teams, can be handily moved at the rate of from thirty to forty miles per day. No building is required, unless the parties choose to erect a rough shed to protect it and the operatives from the weather; nor is there any mason-work. The whole affair can be brought to a given spot, put together, the gear adjusted, steam got up, and be at work in *one day* after arriving at the scene of operations. Again, this mill will perform a much larger amount of work than can be done by any other, with an equal amount of power, and at the same time the work will be superior in smoothness, straightness, and like desirable qualities.

The simplicity of this mill is not the least valuable recommendation in its favor. It can be constructed by any mechanic, and the amount of repairs required, with fair usage, is of insignificant import. The price is another great desideratum, being only from $300 to $500, or, with engine and boiler complete and ready for action, from $1150 to $1250.

Many enterprising men have gone into a new country, determined to settle near a saw-mill, so as to use up or make a profitable disposition of their timber; otherwise, in clearing the land, they would be obliged to burn or waste most of it. This will no longer be necessary. The forehanded pioneer may now take his saw-mill, as he has hitherto taken his ax and hand-saw. On arriving at his "claim," he can set up his mill, get out the timber for his own residence, if need be, sell the balance to pay for his land; and even get back the cost of the mill besides; and, after all that, sell the mill for nearly or quite the original cost of it, to be moved to some other neighborhood, there to saw its way through another useful career; and so on, till its timbers are shivered, and its existence is ended. Nor is this all. A circular saw, for lath, and other light sawing, can be attached, with very little extra expense, and some parties have added a small grist-mill, and the whole was worked without extra power.

Drought—Protection against it.—It is estimated that some 25 gallons of water fall annually on every foot of soil in this country. Now suppose the leisure days of a farmer were devoted to the construction of one or more reservoirs on his high lands, for use when needed. What a difference should we experience in the crops of dry seasons! While the many neglect this, if a few would secure such a safeguard, what prices they might command for their heavy crops! The work would pay for itself in one such year as this

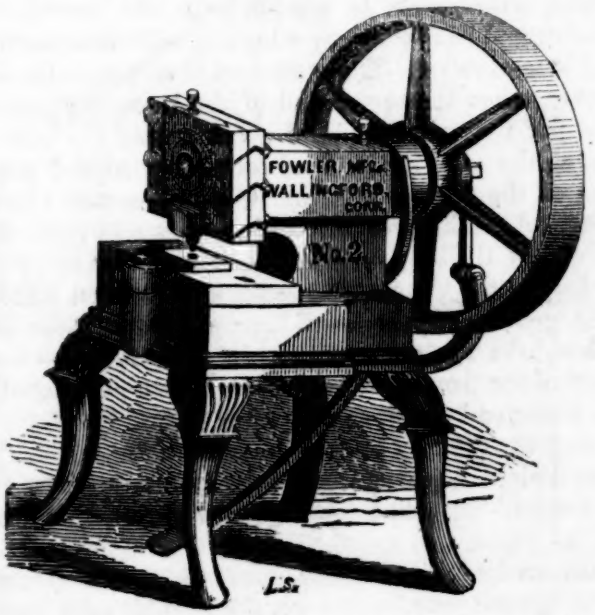


A SAW-MILL OF 1659—FROM BESSON.

SAW-MILLS were at first devised to work by manual labor, as well as by water and other power, and to this machine many crude devices for saving the former, as well as multiplying and increasing the latter, were applied. In a rare old work, *Theatrum Instrumentum et Machinarum*, by J. Besson, in 1569, there is a representation of a saw-mill, here copied, in which there is a gang of saws, one-half of which have the teeth formed to cut on the downward stroke, while the intermediate ones are formed to cut on the upward stroke. The plan for hanging and vibrating the saws is ingenious for the employment of manual labor; and the log is fed forward by means of a windlass and cord, on rollers, the windlass having arms extended out from it, which are struck by a pin on the fly-wheel upon the crank-shaft that turns the windlass at intervals by which means the log is moved a given distance at each revolution of the crank. It will thus be seen, that for a considerable period, gangs of saws were known and used;—and, in fact, all the elements for feeding in the log and sawing by power, were known at least as early as 1588, at which time they were described and illustrated by Ramelli, in *Le Deverse et Artificiose Machine*, published in that year.—*U. S. Jour.*

THE FOWLER MANUFACTURING CO.'s POWER PRESSES OR BOILER PUNCHES.

We have received the following description of these valuable machines, with the engraving, and commend them to the notice of all interested in this department of mechanics:



The main body of the machine is made of cast iron. The hole for the eccentric shaft is reamed tapering so as to receive the shaft with its several offsets.

The eccentric shaft is made large at the front end, to enable us, by the eccentric journal on its end, to give sufficient vertical motion to the punch, and the other bearings are made smaller to lessen friction, weight, etc., while it retains sufficient strength to prevent trembling.

The slide-gate is made of cast iron. Slides in ways in the usual manner, as shown in the engraving.

In the central part of this sliding-gate we make an oblong mortise with parallel sides, in which we place the cast steel sliding block, with a round hole to receive the eccentric journal. We make the sliding block so much shorter than the mortise as to allow it to have sufficient longitudinal motion to accommodate the eccentricity of the journal, while it has no room to move in a vertical direction; so that the motion of the eccentric journal will give a reciprocating motion to the slide which carries the punch. To graduate the motion of the punch so that it may come down at all times to the exact point desired, we use thin plates of different thicknesses, which may be placed *over* or *under* the steel block, and changed at pleasure.

Back of the bearings on the eccentric shaft we fix a permanent collet, which always revolves with the shaft. In the front side of this collet we fix a stud or projection, which acts upon the upper end of the stop lever to throw the wheel out of gear. This lever works on a fulcrum screw, and is held to

its place by a spiral spring when the machine is in gear, while its lower end rests on the clutch lever. In the back of this collet we fix a stud or projection, against the side of which the sliding rod strikes or presses when the machine is in gear. We place the fly-wheel with loose socket on the rear part of the shaft, so as to be turned freely upon it while the machine is out of gear. Back of the fly-wheel, and loose upon the shaft, we place the clutch which governs the connecting-pin. This clutch is moved by the clutch lever, by means of projections working in a groove. The clutch lever works on a fulcrum pin, in an inflexible arm attached to the main casting, and is worked by the foot to put the machine in gear, and is drawn back by a spiral spring to put the machine out of gear.

The power being applied to the fly-wheel, it will move freely on the shaft without causing it to revolve. The workman then places his foot at the end of the clutch lever, when the upper end of the lever will force the clutch up against the nave of the wheel, and the connecting pin will be protruded against the side of the stud in the fixed collet and thereby revolve the shaft, which by means of the eccentric journal will depress and elevate the punch. When the lower end of the cultch lever is depressed to put the machine in gear, the lower end of the stop lever, by the action of a spiral spring, will be drawn over and upon the clutch lever, so as to rest upon it, thereby keeping the machine in gear until the punch has operated on the material to be punched, and has been again elevated to its highest position, when the stud on the front side of the fixed collet, acting on the upper end of the stop lever, will force the lower end off from the clutch lever; thereby, throwing back the clutch, leaving the punch at its highest elevation.

Should it be desired to keep the machine in operation for a number of revolutions, the end of the clutch lever may be fastened, or held down by the foot.

We have patterns for seven different sizes of presses, which will weigh from 100 to 15,000 lbs., constructed either with or without back gears, and capable of executing cold punching that is done by any other style of press.

WOLLINGFORD, CONN.,
Oct. 15, 1855.

JOHNSON'S PATENT THREAD.

MR. E. JOHNSON, of Willimantic, Ct., has lately secured a patent for a peculiar method of finishing sewing cotton. The patent bears a late date, and the letters are in hand. The thread is manufactured by the "Willington Thread Co.," of which Origen Hall, Esq., is the agent. The mills running in the business are located in West Willington, Ct., a small village on the Willimantic and Palmer railroad. The thread finished has a round shape, and is two hundred per cent. stronger, in the common run, than thread finished in the ordinary way. A congress of ladies, who have experience in using thread, have examined the patent thread, and used it in all ways, and each individual says, "it is very fine." "How do you like Johnson's thread?" is the question. "Very much," is one vote; "best I ever saw," is another vote; "far ahead of Coates'," says a third; "Sagemore's first make was not equal to it," says another; and so on, each one voted, all

round the room, perfectly delighted with Johnson's thread. Any man versed in such matters will pronounce the thread now without a parallel in our market. American ladies will not be long in learning its excellencies, and when they have learned them, the article will be used by all of them. Nothing is more certain than that Coates has a competitor in our market, who will better meet our wants than the English manufacture. We hope the Company, which has been formed for the making of this thread, will enlarge their works, and put the article on sale in so many of our commercial towns, that thread users will have no difficulty in finding it. Inquiries for it are now frequent; and it is greatly for the interest of the country that we make our own thread, and save among us the money heretofore sent to England for sewing cotton.

American Patents.

GREAT IMPROVEMENT IN PIANOFORTE ACTION.

We have recently seen and tested the invention by Mr. John S. Morton of this city, by which the action of a pianoforte is wonderfully improved. It is perfectly simple, consisting only of a short lever attached to the hammer shank. The effect of it is to hold the hammer near the string while the player performs a rapid trill or a tremulo. Such is its action that a given note may be repeated with the greatest possible rapidity, without fail, and with only half or even less than the ordinary movement of the key. By means of it a movement is secured equal to that of a grand pianoforte.

It may be applied to any instrument, and at the cost of only $25. We understand that some of the most eminent pianists of the city have tried it and highly commend it. It is unquestionably a capital contrivance.

A Powerful Press.—The Fowler Manufacturing Co., of Wallingford, Ct., have invented lately a new kind of press, two of which they have built, and are now using at their factory. Patents have been applied for. The power of the press is one hundred and twenty tons, after making an allowance of thirty tons for friction. The press is simple in construction, and stout as iron can well make it. It is used thus far in pressing *frying pans;* one hundred dozen of which one press will shape daily. One peculiarity of the press is, that the power of one hundred and twenty tons is not confined to a momentary motion of the stamp, like most presses of great power; but this press puts forth this immense power during a motion of the stamp through four inches, through all which space the press has one hundred and twenty tons. It is supposed to excel any press heretofore built in its great and long-continued power. More particulars may be learned by addressing the company at Wallingford, Ct.

The Double Giant Mill.—The mill named above is a late invention of Messrs. S. & S. M. Colburn, of Ansonia, Ct., and is designed for grinding corn

into meal, and for grinding corn and cobs into feed. It is an improvement on a mill called the *Little Giant*, which is made with a cone inside a shell, and is turned by horse power, the cone, as a whole, moving with that power in uniform rotation. In the Double Giant the cone is made in two parts; the upper section suited to crack the cob, and moving round as often as the horse turns round the lever; and the lower section of the cone is made to reduce the corn and cob to meal, and turns round eight times to one revolution of the upper section of the cone. Hence, for making meal, the grinding section of the cone goes eight times faster in the Double Giant than in the Little Giant. At the very lowest calculation the mill will do three times more work in the same time than the Little Giant. We have seen it in operation, and know that one horse has ground a bushel of corn in twelve minutes. It is a great invention, and must meet an immediate and extensive sale. Additional particulars may be learned by applying to the inventors, who have applied for a patent.

Improved Brake for Railroad Cars.—We have recently examined a model of a new and ingenious Railroad Car Brake, invented and patented by Mr. Lucius Paige, of Cavendish, Vt., and which has been used for some time very successfully on the Rutland and Burlington, and likewise upon the Lowell Railroad. The improvement consists in the employment of a double lever, or of two levers of a peculiar form, one for receiving the power, communicated by the brake-wheel, and the other for communicating the force to the brake. Spiral or rubber springs are placed between these two levers, for the purpose of giving them a yielding force. By this arrangement, the brake is rendered less expensive and more effectual than any other now in use. This of itself we should think would prove a sufficient recommendation to the new brake. All danger of setting fire to the brake by friction is obviated by placing the end of the grain of the timber, of which the shoes are formed, in contact with the wheel. The spiral or rubber spring so equalizes and modifies the force applied, (and its application may be as gradual as desired,) as to prevent the agitation, jar, and noise usually caused by the application of the brake to the wheel, and graduates the movement of the wheel to a final stop without its sliding upon the rail.

Attached to each end of the brake-beam are metallic sockets, through which the shoes extend. The latter are held in their place by metallic face-plates. When the old shoes are shortened by use, these face-plates may be unscrewed, and the shoe placed closer to the wheel; whereas, the ordinary shoes, by being permanently attached to the beam, must be replaced by new ones when shortened a trifle by use. This improvement, however vague may be any attempted description of it, is esteemed one of great practical importance and utillity. The mechanics, conductors and others, who have had to do with the new brake, on the two lines we have mentioned, speak of it as the cheapest and best thing of the kind now in use. Mr. Parker, the agent of the Boston and Lowell, speaks of Mr. Paige's brake as "superior to most," and second to none with which he is acquainted.

Useful Invention.—Important to Railroad Corporations.—Was the reader ever in a train that ran off the rails? If he has been he will have

as lively a sense of the serious delay which such an accident occasions, and of the sad lack of proper mechanical appliances for replacing the train upon the rails, as railroad corporations have of the great injury done to the carriages by the clumsy methods which are brought into operation. Some better system of accomplishing the work has long been a desideratum, and that is now supplied. We were present recently at the shunt of the Boston and Worcester railroad, at Tremont Bridge, to witness some experiments with an apparatus for the purpose, invented by Mr. S. P. Coon, of Milwaukee; when a large freight car off the track was raised and gently deposited upon the rail, the whole operation not occupying more than two or three minutes.

We can only describe the apparatus in a very general way. A couple of rails (which may be taken up wherever the accident occurs,) are run transversely under the beams of the car, or locomotive as the case may be, between the wheels of the trucks, and made to rest upon four portable screws, yoked in pairs, by which the car is elevated to a proper height and firmly supported. A small winch is made adjustable to the ends of the rails, the rope from which is attachable to a staple in the roller-frame. Underneath the car, and resting on the rail and fitting to it, a small roller is placed. The car is raised by the screws, and by means of the winch it is gently drawn to the exact spot desired and safely deposited upon the rails. The whole proceedings need not occupy more than ten minutes. Like all other valuable inventions, this startles by its simplicity; and we understand that it has met the high approval of all the mechanics and other railroad employees to whom it has been exhibited. The apparatus being both light and compact, every train might carry one without inconvenience; and we have no doubt that its advantages will be readily appreciated by those most interested, the various railroad corporations. Mr. Coon, the inventor, and also the agent for this district, Mr. N. Davidson, of 9 Spruce street, New-York, are at present staying at the Tremont House.

Inventions to Prevent Railroad Trains running off the Track.—Danforth Johnson, Esq., of this city, has patented an invention which is intended as a perfect safe-guard to railway trains, so far as running off the track is concerned. He calls it a three-flange car-wheel, and, as the term indicates, it is simply a wheel with three flanges, one of which will strike the rail invariably, in case the train runs over any obstacle on the track, such as horse, cow, etc., etc. It will also keep the cars on the track in places where the rails spread; will prevent the cars from running off the track in case of misplacement of switches, etc., etc. As the great majority of accidents on railroads is occasioned by the cars running off the track, this invention will prevent such accidents in ninety-nine cases out of a hundred. Mr. Johnson has submitted the invention to Mr. Farnham, of the Rock Island Railroad, and also to a number of engineers and railroad officers who all highly approve of it, and express themselves satisfied that it will do all the inventor claims for it. It will, of course, increase the expense of the wheels, but all new inventions for the improvement of the steam engine, locomotive, or indeed any description of machinery, enhance its cost, but at the same time they more than pay for this by economizing labor, by the prevention of accidents, etc., etc.

We hope to see Mr. Johnson's invention brought before the notice of our principal railroad men prominently; it is one of the most important, connected with railroads, that has been discovered for many years.—*Chicago Democrat.*

English Patents.

IRON SHIP-BUILDING.

We suppose that a number of years must pass away before iron ship-building will be carried on to any extent in our country. Timber *versus* iron ships is simply a question of economy: we can build timber ships for less than iron ones, therefore while we can do this, such ships will take the lead. In some other countries, where plate iron is cheaper and timber dearer than with us, iron ship-building has become a great business. Glasgow, in Scotland, stands preëminent for steamship building. The new steamship Persia, for the Cunard Line, has recently been launched there; it is built of iron, and is the largest iron steamship afloat, being 360 feet long on the keel, 45 feet in breadth, 32 feet deep, and of 3000 tons burden. The length of it is eight times that of the breadth—showing how different the proportions of vessels are now from what they were thirty years ago, when three times the length of the breadth was considered the best ratio of proportions. The breadth across the paddle-boxes, however, is 71 feet; still, it appears to us, that a little more breadth of hull would not have been amiss to give her greater stability in the water. Robert Napier & Sons were the builders of both hull and engines; the latter will work up to 4000 horse power—so it is stated—but the horse power of marine engines is a very indefinite matter. Three years ago the British Government would not allow an iron steamer to carry the mails; this decree is now reversed.

This monster of a vessel is built in seven water-tight compartments, and will have accommodations for 300 passengers. She will be ready for sea in October, and unless the British Government take her up for the Crimean service, we may expect to see her here about the month of December next.

There are thirty-six iron ship-building establishments in the neighborhood of Glasgow, on the river Clyde. The capital employed is $10,000,000 and 50,000 skilled workmen are engaged; and at the present time they have 32 new iron ships on the stocks. The arrangements for their construction and alteration are very perfect. A short time since an iron steamer was lengthened 30 feet, and her capacity for carrying increased 200 tons, in 14 days. Another steamer was cut open in two places to avoid removing the engines and boilers, and 35 feet added to her length, in 21 days.—*Exchange*

New Mode of Casting Steel Tubes without Welding or Brazing.—By this process, cylindrical or tubular forms are cast of a length and diameter according to the length and diameter of tube or cylinder intended to be cast, in steel, in like manner to what has heretofore been practised when making the tubes of copper or of brass, or solid ingots of cast steel; and having heated them to the usual temperature at which cast steel is hammered, he subjects them to the action of a tilt-hammer previous to drawing through the draw-plates, or extending by means of rolling. He sometimes anneals the cast cylinders or tubes, by taking the castings from the moulds, or by taking the moulds and castings where the material of the moulds and other circumstances permit, whilst still as hot as may be, and placing them

into annealing oven. The casting is then heated to a red heat, such as is used when rolling or extending ingots of cast steel into bars. The tubular casting of steel is then extended in length by hammering, when on a mandril, or by means of grooved rollers moving or rolling the hot steel tube over a fixed mandril, such as is used in welding iron tubes by grooved rollers; and it is again and again heated to extend its length. When the internal diameter of the tube or cylinder is required to be reduced, mandrils of less and less diameter, and less diameters of grooves in the rollers, are used; or, in the place of fixed mandrils and grooved rollers, taper mandrils, such as are used when drawing or rolling brass tubes, may be used, and passed between the rollers with the tubes thereon, and be withdrawn therefrom, as when rolling or drawing brass tubes on such like mandrils; or, in place of grooved rollers, dies or draw-plates, such as are used for drawing brass tubes, may be employed, with slightly tapering mandrills, such as before mentioned; the steel tubes being heated to a red heat before drawing them through less holes in the dies or draw-plates,—and the mandril is to be withdrawn as quickly as may be after drawing. In some cases, where it is not intended to re-heat and to temper the steel tubes, and yet where hard, close-grained steel tubes are required, the steel tubes may, in the last, or the last one or two drawings, be drawn cold after being carefully annealed; in which case, the reduction in diameter, and the extending in length should be small; but, by drawing cold, a very close and compact grain may be obtained.

Permanent Impressions of Flowers on Glass.—Mr. Robert Smith, of Blackford, has contrived a very ingenious and effective plan of ornamenting glass, by producing thereon permanent impressions of flowers, leaves of plants, and other objects. In this process of ornamentation, the operator goes to work by first preparing the objects to be reproduced on the glass surface with a solution of gum. The details of the figure are thus attached to the glass, in the positions required by the device. The entire face of the glass thus treated, is then covered over with a composition of oil, tallow, and wax, in a warm state. When this composition coat becomes solid, the objects are removed from the glass, which is now submitted to the action of fluorine gas; or liquid fluorine may be poured upon the glass; or further, the plate may be treated with fluor spar and sulphuric acid. This is the ordinary treatment involved in glass-etching—the peculiarity of Mr. Smith's process being the mode in which the design or the line of action of the acid is produced. The fluorine corrodes the glass only at the parts where the flowers or pattern objects have been placed, and hence the forms of the objects, however elaborate or delicate, are faithfully reproduced from the models supplied by nature herself. The ornamental designs produced in this way are extremely beautiful, contrasting as strongly with the result of ordinary staining as does a good daguerreotype picture, or nature painting, with a mechanically produced engraving; the figuring accomplished in this way may be colored as fancy suggests, by the common process of baking or "burning-in" in a furnace. This is another of those processes by which we are now compelling nature to reproduce for us her choicest devices in a more enduring form.

Miscellaneous.

MASSACHUSETTS CENSUS RETURNS.—The western counties of Massachusetts are composed chiefly of towns of from 2000 to 4000 inhabitants, but they appear to be increasing.

The Springfield *Republican* publishes returns of the new census from the greater portion of the towns in the five western counties of this State. From these we gather the following facts:

Sixteen towns in Berkshire county have made an aggregate gain of 3761 over the census of 1850, while five other towns have lost 340, leaving a net gain of 3421 in 21 towns, and nine towns yet to be heard from.

Eight towns in Franklin county have gained 1610 since 1850, and fifteen others have lost 852, leaving a net gain of 852, and three towns to be heard from.

Ten towns in Hampden have gained 5627, and others have lost 2283, leaving a net gain of 3394, and four towns to be heard from.

Five towns in Hampshire have gained 1605, and thirteen others have lost 1858, leaving a net loss of 253, and six towns to be heard from. In those to be heard from are included Northampton and South Hadley, the gain in which will much overbalance the above loss, and leave the balance on the right side.

Thirteen towns in Worcester county (as corrected by us) have gained 17,805, and thirteen others have lost 796, leaving a net gain of 17,008, and twelve towns to be heard from.

FEMALE JOCKEYS.—At a recent horse-race in Doylestón, Pa., twelve females, each mounted on a "sporting horse," entered this list for the prize. Among these were three circus women from Philadelphia. They started and made the race in the presence of thirty thousand people.

Commenting on the proceedings, the Buffalo *Express* remarks:

"What a comment upon the taste, the modesty, the morality of the times. Here are twelve females—the wonder and admiration of the gaping multitude on a race-course, when they should have been adorning twelve households with the dignity of modest refinement. It would have been far better for them had they been engaged that afternoon over twelve wash-tubs, rather than riding twelve horses in a heat over a race-course surrounded by vile men and imprudent women. This is a kind of progress which bodes no good to a refined and moral-toned society. When our mothers, daughters, and sisters turn horse-racers and gamblers, their influence upon the generation that follow will be such as to fill the earth with all manner of iniquity."

ROUTES TO BOSTON.—All the routes eastward are deservedly well patronized, and in each the traveler is well cared for. The Norwich and Worcester route has a shorter trip by sea and more railroad, making the time shorter. The Fall River line has superior boats, most excellent officers, sets the best tables of any steamboat line leaving New-York, so far as our experience goes, and gives you an entire night for rest on board the boat. We have always been well treated by both these lines, but we are so perfectly satisfied with the Fall River route that we seldom take any other. The captains and

clerks, by their long experience and familiarity with their duties and their remarkable courtesy, win the regard of their passengers and lead them to desire a further acquaintance. This is especially the favorite route of ladies.

THE OPERA IN NEW-YORK.—Capital entertainments are presented to the citizens of this city and to visitors at the Academy of Music. No company has given better satisfaction. Madam LaGrange is a charming singer and a good actor, and she is ably sustained. Miss Hensler has appeared also in several leading parts, and has received great and well-merited applause. She promises very much for the future.

THEATRICAL.—Madamoiselle Rachel is quite successful. She draws full houses and receives universal applause. She is doubtless the greatest actor of her generation. We have heard her only at her "readings," but we have heard enough to venture the highest encomium upon her abilities.

SMITH'S TOUR OF EUROPE still remains in this city, and receives, as it richly deserves, large patronage. It is unquestionably superior to any panorama ever before in this city.

NEW BOOKS.

THE CONTRAST BETWEEN GOOD AND BAD MEN, illustrated by the Biography and Truths of the Bible. By GARDINER SPRING, D.D., LL.D, etc. In 2 volumes, New-York: M. W. Dodd. 12mo.

We have always entertained for Dr. Spring the highest respect, and now, when age grows upon him with its attendant bodily infirmities, like the jewel in the hand of the craftsman, he shines brighter and brighter. These volumes are admirable. Plain and unassuming they forcibly inculcate valuable truths in an earnest, serious, and persuasive manner. Their simplicity charms us. The choice of topics is judicious, and the lessons inculcated by them are aptly set forth, and show no abatement of the intellectual power for which the learned author has been so long and so much distinguished.

THE HIDDEN PATH. By MARIAN HARLAND, author of "Alone." New-York: J. C. Derby. 434 pages.

This is one of the best wrought tales we have ever read. The moral of it is excellent. It also exhibits great power of intellect. The plot is intricate and the characters very various, but all harmonize, and, in combination, offer an unusual treat to the intelligent reader.

THE OLD HOMESTEAD. By Mrs. ANN S. STEPHENS, author of "Fashion and Famine." New-York: Bunce & Brother. 435 pages.

Mrs. Stephens is a very able writer. Some passages in this book are full of power. But in this respect probably this story is inferior to Fashion and Famine. The plot of this is complex, full of strong contrasts and strange developments. But it excites the deepest sympathies of the reader. The scene is laid in New-York, and affords abundant opportunities, which are well improved, of exposing some of the gross abominations of our city government, and the corruption and degradation which seems to pervade almost all who are connected with it.

A Basket of Chips. By John Brougham. New-York: Bunce & Brother. 408 pages.

The author of this volume says to "my dear public" in his preface: "I have no intention of inviting you to such a feast of reason, (as he has just illustrated,) but simply ask you in the earnestness of the broadest kind of hospitality, to drop in and take pot-luck," etc. Notwithstanding a very direct intimation that some editor will take occasion to say "a smart thing or two" about him, and though he admits that these sketches are "but the sawdust and shavings accumulated during intervals of more laborious carpentry," we nevertheless consider that it contains some very good pieces of cabinet work. The timber, though very various, is generally sound, and good of its kind. It contains some four-and-twenty chapters, tales, etc., independent of each other. But some few are decidedly vulgar, and objectionable in other respects. Some are funny, some pathetic, some poetry, and some prose. (The reader will remember that the *e* in the last word is not accented.)

The Rag Picker; or, Bound and Free. New-York: Mason Brothers. 431 pages.

It seems nowadays that our heroes and heroines are chiefly to be found among the suffering and unknown. The Lamplighter is an illustration of this, and now here comes the Rag Picker, and he is not only made into a hero, but into one of the best we have ever been permitted to become acquainted with. His little helpless friend Carrie is perhaps only second in interest to little Eva, or to little Alice in Martin Merrivale. Several of the characters are drawn with masterly skill. It forcibly teaches the value of honesty and integrity, though, to our taste, it would have been better had several chapters of the most zealous kind of anti-slavery been omitted. It is hardly fair to *argue* on slavery by fictitious narrative.

Inside View of Slavery; or, A Tour among the Planters. By C. G. Parsons, M.D., with an introductory note by Mrs. H. B. Stowe. Boston: J. P. Jewett & Co. 318 pages.

This volume is not particularly complimentary to the people of the South, though the author says many pleasant things about them. It contains a chapter on Southern Agriculture, which, like many other statements made by the author, may be a description of what he actually saw, but can scarcely be a true picture of the agriculture of the Southern States. The "inferior tools," "neglect of rotation," etc., etc., are passing away and giving place to modern improvements. In many parts of those States, sound theories are entertained, and descrimination and good sense are exercised in the management of land and crops.

The Physiology of Marriage. By an Old Physician. John P. Jewett & Co, Boston. 1855. Small 12mo, 259 pages.

Some very important subjects can scarcely be discussed at all without calling down the censure of factious critics. Some, undoubtedly, ought not to be discussed except by and for the scientific. Those who have investigated this are well persuaded that it is a topic on which most intelligent people are grossly ignorant, and that incalculable suffering is the invitable result. Silence in such circumstances seems criminal. This writer has treated this delicate subject, in our judgment, in an unexceptionable manner, and shows beyond controversy, that it is quite time that parents and others should correct their own habits and their treatment and education of the young.

The Complete Works of Shakspeare, etc., etc. Published by Martin & Johnson, 27 Beekman street.

We have omitted to notice the recent numbers of this elegant work. Twenty-eight numbers are now issued, and, like the previous ones, in a style unequalled by any other American edition. Forty numbers complete the set. Single numbers are 25 cents; each

have one or more splendid steel engravings. It is in quarto form. The later numbers contain portraits of Mr. Warren as Lance, C. W. Cauldock as Cardinal Wolsey, John Gilbert as Dogberry, Mrs. Julia Bennett Barrow as Viola, G. V. Brooke as Macbeth, and Miss Charlotte Cushman as Lady Macbeth. The late numbers are double, or two in one cover.

NEW MUSIC.

Messrs. HALL & SON have lately issued the following pieces among many others:

"The Maiden Blush," a set of waltzes for the pianoforte. By Karl Londorff. Very simple and easy for beginners.

"My Home is There." Song and chorus written by Robert Baker. Composed by Wm. O. Fiske. Very pretty, both song and chorus.

"Remembrance of Thee." Song written by Miss Celia M. Burr. Dedicated to Mrs. Wentworth, and composed by Francis H. Brown. Very pretty.

These are well worthy the attention of amateurs.

A POLKA entitled "The Grand Tour of Europe and Siege of Sevastopol Polka," in which is introduced the much-admired chime of Antwerp bells. Composed by Mr. Aylwin Field, the pianist of Smith's Exhibition, is one of the best compositions of the kind we have ever heard. We scarcely know how much of the pleasure it has so frequently excited in us is owing to the remarkable skill of this gentleman, but under his touch it is certainly very beautiful. It is published by Bennett & Co.

List of Patents Issued

FROM AUGUST 28, 1855, TO SEPT, 18, 1855.

[Our last month's list terminated Aug. 28th, instead of Aug. 21st, as printed.]

J. W. Bocage, Cypress Mills, Ark., improvement in machine for cutting standing cotton stalks.

C. H. Butterfield, of South Lancaster, Mass., improvement in lantern guards.

John Cochrane, Baltimore, improvement in machines for sawing marble.

George H. Coney, Boston, improvement in the method of securing keys in connecting rods, etc.

John Clark, Cambridge Township, Pa., self-regulating valve for ventilation.

John D. Eliot, Leicester, Mass., improvement in machinery for folding and measuring cloth.

Robt. S. Eastham, Banchester, Ohio, improvement in saw-mill carriages.

John E. Heath, Geneva, O., improvement in harvesting machines.

Geo. K. Hooper, Boston, life-preserving beds for ships.

Josee Johnson, Washington, D. C., charger for fire-arms, etc.

Francis Grace Mitchell, M.D., New-York, improvement in hernial trusses.

Jonathan Nisbit, Jr., and Thos. Cosley, Clear Spring, Md., improvement in hominy machines.

Christian E. Offhause, Newark, improved rotary steam engine.

Freeman Plummer & Gilman B. Rollins, of Manchester, Ind., improvement in seed planters.

John J. Speed, Jr., and John A. Bailey, Detroit, Mich., improvement in conical plate railroad car springs.

J. B. Terry, Hartford, improved machine for crimping paper for stickpins.

O. S. Woodcock, Connelsville, Ind., improved method of operating reciprocating saws.

Henry J. Weston, Buffalo, improved construction of beds for shingle machines.

Wm. Wilber, New-Orleans, improvement in cotton seed hullers.

Wm. Wilber, New-Orleans, improvement in steam apparatus for extracting vegetable oils.

Wm. Wilber, New-Orleans, improvement in grinding cotton and other seed for their oils.

Thos. J. Yampert, Mobile, double acting force pump.

Amos Abbott, Manchester, N. H., improvement in horometers. Patented in England, Sept. 20, 1854.

Walter & Jonas B. Aiken, Franklin, N. H., as-

signors to Herrick & James B. Aiken, same place, improvement in knitting machines.

Anson A. Swift, Florence, Ala., assignor to himself and Samuel L. Hill, same place, improvement in machinery for trebling a single thread.

Albert Bisbee, Chelsea, Mass., improvement in steam guage cocks.

Samuel W. Brown, Lowell, improvement in machinery for cleaning cotton.

William Burgess, London, improvement in mowing and reaping machines. Patented in England, Aug. 16, 1854.

Newell Cleveland and James J. Johnston, Alleghany, improvement in heaters for smoothing irons.

Joel Densmore, Blooming Valley, Pa., improvement in feed water apparatus of steam boilers.

Thomas Durden Montgomery, Ala., machines for felling trees.

Rensselaer D. Granger, Philadelphia, improvement in corn and cob mills.

Wm. Grover, Holyoke, improvement in cutting wire.

Wm. V. Gee, New-Haven, Ct., improvement in looms for weaving suspender webbing.

G. W. B Gedney, New-York, improvement in brick machines.

Dean S. Howard, Lyonsdale, N. Y., improved sawing mills.

Amos P. Hughes, Philadelphia, for dove-tail key cutter.

Horace Harris, Gorham, N. Y., improved plane bit.

Daniel K. Winder, Cincinnati, improved card printing press.

James H. Kelly, Rochester, improvement in lanterns for locomotives. Ante-dated June 20. 1854.

Richard Kitson, Lowell, improvement in machine for picking fibrous materials.

Edmund Morris, Trenton, N. J., improved seal and stamping press.

Wm. M. Marston, New-York, for improvement in fire-arms.

John S. Morton, New-York, for piano-forte action.

Fred. S. Newbury, Albany, improvement in revolving fire-arms.

John M. Reader, Nashville, improvement in safety apparatus for steam boilers.

John Stinson, Danville, N. J., improved instrument for determining latitude and longitude.

John M. Sigourney, Waterton, N. Y., improvement in cooling cast iron car wheels.

Clark Tompkins and John Johnson, Troy, improvement in knitting machines.

Saml. W. Lowe, Philadelphia, assignor to himself and Jacob M. Beck, Harrisburg, Pa., for preparation of metallic plates for printers.

Peter H. Niles, Boston, assignor to Ralph C. Webster, Watertown, improvement in curtain fixtures. Ante-dated March 18, 1855.

John Van, St. Louis, improvement in cooking stoves.

Daniel Bedford, New-York, apparatus for discharging reservoirs, etc.

C. G. Betel & H. J. Brunner, Nazareth, Pa., improvement in machines for sawing stone.

Frederick Beerstecher, Philadelphia, improvement in fire-arms.

James Emerson, Worcester, improvement in pressure stoppers for chain cables.

Ezra Gould, Newark, improved method of regulating length of stroke in morticing machines.

Joshua E. Hall, Cleveland, improvement in coffee pots.

Thos. N. Luptin, Winchester, Va., improvement in rakes to reaping machines.

Henry J. Behrens, N. Y., improvement in wrench.

Wm. Mt. Storm, N. Y., improved method in actuating gas engines.

Richard Montgomery, N. Y., improvement in corrugated beams.

Jacob Nelson, Cincinnati, improved awnings for horse and dray.

John S. Robbins, San Francisco, improvement in ship's rudders.

H. & Richard S. Schevenell, Athens, Ga., improved machine for cutting ornamental mouldings.

Robert B. Tolles, Canastota, improvement in optical instruments.

Alonzo Webster, Montpelier, improved holdback for carriages.

Charles Weston, T. F. Weston, and John W. Weston, Salem, improvement in leather-splitting machines.

A Wyckoff and E. R. Morrison, Elmira, improved boring machine.

Wm. White, Portsmouth, Va., improvement in bedsteads.

Peter L. Weimer, Reading, improvement in trip-hammers.

Saml. L. Weed, Stoneham, Mass., machine for making printers' types.

D. S. Wagoner, Penn Yan, improvement in flouring mills

John Taggert, Roxbury, assignor to himself and Theodore Parker, Boston, improvement in artificial legs.

John B. Holmes, N. Y., assignor to John R. Pratt and Joon B. Holmes, same place, improvement in ship's windlasses.

Peter Arneson, Jordan Pederson, and Hans Rees, N. Y., materials for manufacturing of hat bodies. (2 patents.)

Henry Sizer, N. Y., opening and closing hatch ways.

Wm. Sellers and James Walker, Cincinnati, O., moulding circular and undercut work.

Hiram and J. C. Taylor, Cincinnati, cooper's crozing plane.

Bernard Goetz, Philadelphia, corrugated reflectors.

John Hyde, N. Y., screw wrench.

James Harrison, Jr., Milwaukie, sewing machines.

Seth C. and W. W. Hurlbut, Boonville, N. Y., feed motion for planing machines.

Charles Moore, Trenton, N. J., steam boilers.

Benj. F. Miller, N. Y., chimney stack.

Joseph Powell, Waterbnry, Ct., knitting machine,

Saml. Pearn, N. Y., ship's pumps.

E. K. Reynolds, N. Y., clock escapement.

Chas. C. Reed, Philadelphia, machine for preparing rattans, etc.

Gustavus Weissenborn, N. Y., assignor to Epes W. Sargent, N. Y., thermo-udoric filter.

Humphrey M. Glines, Manchester, N. H., assignor to J. M. & S. F. Stanton, machinery for filling seine needles.